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CAOUTCHOUC GUTTA-PERCHA

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FOREIGN DUTIES ON AUTO. TIRES.

TIRE manufacturers will undoubtedly be interested in the table given on later pages in this issue showing the duties levied on motor car tires of every sort in the various foreign countries where tires are used. Naturally the most interesting field for the American manufacturer is Europe. It will be noticed that there is a wide range of imposts on inner tubes and casings in the various European countries. Great Britain of course admits them free. Switzerland follows next with a duty so low—only 8 cents per hundred pounds on solid tires and 44 cents per hundred pounds on pneumatics—as hardly to be worth consideration. From this point the duties range upward to that levied by Spain, a country that has no home production to protect but which levies a duty of $23.64 per hundred pounds on inner tubes and casings. Next to Spain is Russia, with a duty of $21.39 per hundred pounds. But of course in Russia there is practically a government monopoly in the manufacture of all rubber goods. Germany requires a payment of $6.48 per hundred pounds on all inner tubes and casings of foreign manufacture, while France lays an impost of practically twice that, amounting to $13.13 per hundred pounds.

In South America, where one would naturally suppose the importation of tires as an essential part of trucks and automobiles would be encouraged, the duties run uniformly high. Paraguay taxes imported tubes and casings at $36.77 per hundred pounds. Chili discriminates between solids and pneumatics, laying an impost of $19.87 per hundredweight on the first and $39.74 on the second. Brazil, on the other hand, while permitting pneumatics to enter under a payment of 12.8 per cent. ad valorem, increases the impost to 70 per cent. ad valorem on solid tires, which are classed under the general grouping of "rubber manufactures not specified."

Japan has the distinction of levying the highest specific duty on imports of tires, namely, $42.92 per hundredweight; but Japan has quite an idea of becoming a rubber manufacturing country and therefore believes in adequate protection.

THE FLYING MACHINE IN WAR.

THE recent manœuvers of Zeppelins over Paris and the threat that with the calmer airs of June they will rain explosives upon London have served to increase interest in these new and spectacular engines of warfare. The chief military service of these ships of the air so far consists of detective rather than destructive work. They have not proved particularly efficacious in the wiping out of battalions; but they have proved exceptionally efficient in locating the hidden enemy and in indicating his position with such accuracy that the gunner back behind the hills could wipe out his battalions—which is quite as effective.

In the construction and operation of this aerial craft rubber plays a dominant part. Several pages are devoted in this issue to describing in detail the extent to which rubber enters into the building of aeroplanes and dirigibles and the manner in which it enables the pilot to keep his working energies in the rarefied atmosphere of great altitudes and even for a considerable length of time under the surface of the sea, in case he falls and is submerged. Aviation in warfare will undoubtedly develop immeasurably beyond its present condition, but it is doubtful if it will ever develop beyond its dependence on rubber.

THE CLEANLINESS OF PLANTATION RUBBER.

THERE is one marked advantage which plantation rubber enjoys over all the varieties that come from the forests, namely, the cleanliness with which it may be prepared. There will be found on another page of this issue certain recommendations recently sent out to the planters by the Rubber Growers' Association, of London. There are twenty-three of these recommendations and it will be noticed that six of them, or over one-quarter of the whole, refer in one way or another to the matter of cleanliness. This shows that in the opinion of the association this phase cannot be emphasized too much.

The necessity is pointed out not only of keeping all chips, shavings and other impurities from the latex as it comes from the tree, but of preserving all cups, utensils and machinery in a constant state of cleanliness. In speaking of the reception of the latex at the factory this rule is laid down: "The latex should be received if possible on a verandah, so that there is no necessity for coolies to enter the building, thus avoiding the presence of dirt in the factory." This seems almost finical, but it shows the extreme care taken on plantations of the better sort to preserve absolute cleanliness in their product. The final injunction refers to the necessity of having the inside of the packing as clean as the rubber.

These precautions can be carried out to the letter on the plantation, but in the forest, where every *seringueiro* is a law unto himself and where it is impossible to supervise him while gathering and coagulating the latex, it is a different story. In cleanliness of product the advantage is obviously with the plantation.

ANOTHER CEMENTER OF SOUTH AMERICAN FRIENDSHIP.

STATESMEN, bankers and business men to the number of many hundreds gathered at the luncheon given by the Pan-American Society on March 19 in honor of ex-Senator Burton, of Ohio, who was to sail the next day for a four months' tour of South America for the purpose of additionally cementing the friendship between the republics of the South and ourselves. The term additional is used in view of the similar tours of amity promotion previously taken by distinguished American statesmen.

Some nine years ago Mr. Elihu Root, then Secretary of State in Roosevelt's cabinet, visited practically all the South American governments on a tour of cementation which proved to be a triumph. Later he was followed in this excellent work by ex-Ambassador Robert Bacon, whose pleasing personality also made an agreeable impression upon our South American friends. Nor should we altogether omit mention of Mr. Roosevelt, who devoted several months to the South American continent a year and a half ago—to be sure, not so much in the interest of trade development as for the purpose of finding a few undiscovered rivers. But his visit served also to develop South American enthusiasm for North American characteristics. And, reciprocally, many leaders from the southern republics have visited us, notably Dr. Müller, who came to our shores a little less than two years ago and graciously endured a volume and continuity of hospitality that would have sent a lesser man to a sanitarium.

It is no fault of the statesmen of either North or South America if the manufacturers and exporters of the United States are not thoroughly alive to the opportunities awaiting them in the southern countries. In fact, the business men of this country as a rule do not require a great deal of assistance to discover opportunities. The reason they have not made a vigorous attack on the South American trade in the past is that they preferred to confine their efforts to the home market as returning a better proportion of profit on the outlay of effort. The Germans and English have secured the South American market because, needing all the markets they could get, they were willing to do the necessary work—to extend long credits, to conform to local customs and, in many cases, even to develop the country's latent resources in order that there might be business to get.

But the war, of course, has changed conditions in South America. The commerce in many of the republics has fallen off disastrously and the commercial situation in many parts of that continent is distressing, and South Americans show an inclination, if not to meet North Americans half way, at least to come a reasonable part of the distance, in an effort to get together. On the 10th of May there will be a Pan-American conference at Washington attended by the financial ministers and leading bankers of the South and Central American countries with the object of increasing commercial relations with the United States; and it will be surprising if, with all the efforts now being made in that direction, trade relations between the two continents do not greatly increase. To be sure, no visible beginning of such a trade increase has yet been made, for during the first seven months of the war—from the first of August, 1914, to the end of January, 1915—exports from the United States to South America decreased from $80,933,316 for

the same period of the year before to $45,739,857, a falling off of nearly 44 per cent. But that was due largely to the financial straits in which the South Americans have found themselves since the opening of hostilities in Europe.

However, the establishment of North American banks in Brazil, Argentina and other points is an entering wedge; and when the manufacturers of the United States begin to send their salesmen into these southern parts there is one point that they undoubtedly will all keep in mind, because it has been reiterated so constantly by every speaker and writer on the South American problem, and that is the necessity of having their salesmen carry with them into the southern ports all the suavity and urbanity of which they are possessed. At the Burton luncheon ex-Senator Root, commenting on this matter, said: "Our short, sharp, brusque, but resourceful way of transacting business goes near to the verge and sometimes over the verge of bad manners. The business men of South America are sympathetic and attentive in their business as well as in their social relations." So if the traveling man from the States tries to get South American business by methods that are "short, sharp and brusque," it will be his own fault. He has been amply warned.

COMMENDING OUR NEUTRALITY.

OUR English correspondent, in his contribution to this issue reviewing rubber conditions on the other side of the sea, takes occasion to say that "however much the general American press may have on occasions departed from professions of neutrality, the international subscribers to The India Rubber World have found nothing in its pages suggestive of bias to one side or the other engaged in the titanic struggle."

We believe that this statement of our correspondent is entirely in harmony with the facts. While those publications, a large part of whose space is devoted to political discussion, are liable, notwithstanding the best intentions on their part, to be swayed to one side or the other in their attitude towards the combatants is this great war, The India Rubber World, being wholly devoted to the development of the rubber industry wherever it has taken root in any part of the world, feels that it would not be justified, even were it so disposed, to take any other than a strictly neutral view of present international conditions.

It hopes, now as heretofore, to be of the utmost service to rubber interests wherever they may be situated and whatever may be their political associations; and it is hardly necessary to add that it will feel an infinite sense of relief and satisfaction when this strife shall cease and the overseer return to the plantation, the chemist to the laboratory and the workman to the factory—when rubber shall once more move freely and without restraint through the normal channels of commerce and the mills be busy only with those lines of rubber manufacture that contribute to the arts of peace and to the benefit of mankind.

AND NOW A JUNK TRUST!

AND shall the humble rubber shoe, which has weathered the wintry blizzard, the January thaw, the mud of March and the pelting equinox, and at last found a quiet resting place on the dump heap—shall this also fall a victim to the insatiable trust? Evidently the Government thinks that this has already happened, for it is reported that the Department of Justice at Washington has instructed its agents in the West to make a thorough investigation of the so-called "junk trust," to see if its operations and those of its allies and subsidiaries are in restraint of trade. It is to be hoped that the charge is groundless. The merging of all railroads under one control and the concentration of all the banking activities of the country within one institution might be viewed with equanimity, but let us trust that the finder of a choice section of worn-out and discarded tire may still be able to command its full market value and not be compelled to make terms with a grinding monopoly.

THE MICROBE IS NOT GUILTY.

THE unhappy microbe has latterly become a universal scapegoat. When the doctors are put to it to diagnose a case of physical derangement they saddle it on the microbe. And now it is openly charged that when rubber boots and rubber tires do not live up to their guarantees and go to pieces prematurely, the microbe did it. Here is a paragraph which some thoughtless person has started through the rounds of the press: "If your automobile tires or your rubber boots don't wear as they should, it may be because microbes are eating them. Rubber, when sufficiently moist, is frequently attacked by certain bacteria which feed on the albuminoids, resins and sugars it contains. At least two varieties of microbe are able to assimilate the hydrocarbon of rubber and by so doing destroy its value."

A false charge! The microbe is not guilty. To be sure he is not at all averse to crude rubber and is liable under favoring conditions to prey upon its quality. That's quite another matter. But when it comes to boots and tires and other manufactured goods they possess no attraction for him. He does not attack their albuminoids and sugars, for the excellent reason that if they are properly vulcanized they have no albuminoids and sugars. If they have, they are unworthy to be classed with boots and tires and ought to be turned over to the microbes.

The Part That Rubber Plays in Military Aviation.

WHATEVER may have been the popular opinion as to the military value of the flying machine prior to July of last year, there can be no doubt about the important part that aeroplanes have played in the world war. Necessity has compelled the air pilot to take seemingly desperate risks, and in doing this he has gained confidence in his craft and has found many ways in which he could use his vehicle to the advantage of his fellow fighters moving upon the ground.

Today, the warring nations are striving in every way to obtain more aeroplanes, for quite apart from the offensive value of these mechanical birds of man's making, they have the gift of reconnoitring, which either compels extreme efforts towards secrecy on the part of the foe or, this failing, reveals the antagonist's positions and thereby facilitates certainty of attack. In short, the flying machine has more than once broken up the strategic moves of the foe and in this manner has made it more and more difficult for an enemy to surprise. Indeed, it may justly be said that this method of aerial scouting has played a conspicuous part in prolonging the war, because one army's concentration for assault at a supposedly weak point has been promptly met by ample defenders, all because of the spying from above.

Today, because of strict censorship, it is quite impossible to tell just what is the aeroplane force of the various nations. But, at the beginning of the conflict, the most reliable data gave the following approximate figures regarding heavier-than-air flying machines: France had 1,400 aeroplanes; Germany, 1,000; Russia, 800; Great Britain, 400; Austria, 400; Belgium, 100; and Servia, 60 aeroplanes. At the same time, the United States could boast the unpretentious array of 23 aeroplanes in the army and navy combined. In the matter of airships or navigable balloons, commonly called "dirigibles," the comparative resources were as follows: Germany, 40 dirigibles; France, 22; Russia, 18; Great Britain, 9; Austria, 8, and Belgium, 2 dirigibles. Like Mother Hubbard's cupboard, our air fleet contained none of these.

The Pilot of a German Seaplane Protected by a Combined High Flight and Submarine Respirator.

While Germany from the very beginning of hostilities has promised to use her Zeppelin dirigibles offensively and with very disastrous effects, the fact remains that these airships have not figured tellingly up to date, although they have done a minor measure of damage at widely separated periods. But, however, while the Zeppelins have failed to live up to their dire threat, there is no question about the effective work that the dreaded "Tauben" (which means "doves") of the Kaiser's armies have done from time to time. As air scouts and as offensive instruments of war, these flying machines have rendered good account of themselves from the beginning, and their pilots, like those of their rivals, have taken desperate chances in order that this arm of the service might prove its worth.

Undoubtedly the most interesting way in which rubber enters into aviation is its use in the respiratory apparatus, which makes it possible for the aviator to work under atmospheric conditions that normally would render him absolutely helpless. This phase will be described in detail further on. But first consideration may properly be given to the part that rubber plays in the construction of the flying machines themselves. It plays a conspicuous part in both the airship and the aeroplane. True, the Zeppelins use less rubber than other types of dirigibles, because they belong to the so-called "rigid" class, having an external envelope of thin fabric with an aluminum coating, within which are a number of small balloons made of goldbeater's skin —the outside membrane of the large intestine of the ox. But the majority of dirigibles are of the "non-rigid" type; i. e., their envelopes are flexible and are given a measure of semi-rigidity by means of the pressure exerted outward by the buoyant hydrogen gas. For the non-rigid ships rubberized fabric must be used, and while the leakage through this material averages about one per cent. in twenty-four hours, still it is the best fabric attainable—elasticity under pressure being a prerequisite. The semi-rigid type is really a modified non-rigid dirigible, and here, again, rubberized material is demanded.

As the layman will readily grasp, it is of vital importance that the envelopes should be tough and not liable to tear easily. Accordingly, in the navigable airships of today the fabric is a composite affair, made up of several layers of cloth with layers of rubber intervening. This material is pressed together and vulcanized. Then the stuff is cut to various shapes as the construction of the aircraft demands. In the building of the non-rigid airships for England, the so-called "Continental" fabric used for the envelope is a double diagonal rubberized material, and this is treated with chrome yellow externally to shield the rubber from the effects of sunlight. All seams are gummed with rubber cement. It is said that it is easier to repair the envelope of the non-rigid airship than to mend the outer covering of a Zeppelin. Indeed, while the elastic envelope seldom lasts more than three years, still it can be replaced at a comparatively moderate outlay—estimated at less than $2 per square meter. It is the practice to place the warp and weft of rubberized fabrics so that the threads of each layer are diagonal to those of the contiguous

layer. This is what is termed "diagonal doubling," and makes a very sturdy material.

In addition to the use of rubber in the envelopes, rubberized cloth is used as a weatherproof covering for the suspended car hanging below the envelope of the dirigible. Further, rubber in the form of tubing is used at various points to take the rub of ropes and stays where surfaces are exposed to chafing. In the big dirigibles there is a sound-proof chamber for the wireless operator, and, as we already know, hard and soft rubber figure extensively in electrical installations of this sort. Rubber tubing and rubber packing are employed in connection with the propulsive motors and the gasolene feed, and, of course, the crews of navigable airships all have weather clothes of rubberized material.

As the reader will realize, the individual aeroplane has much less need for rubber cloth than the dirigible airships of the non-rigid or semi-rigid types, but the wing fabric must be waterproof; otherwise the material would absorb rain or moisture and add an appreciable percentage of dead weight to the equipment to just that extent increasing the load upon the motor and altering the pilot's problems of control. Here, again, rubber helps out as nothing else will, and this is particularly the case with the seaplane or flying-boat. In the Curtiss aircraft of this sort, the wings are composed of a framework of laminated wood, fastened with copper straps at the joints, over which is fastened rubber-coated fabric. Indeed, this same material is used for the rudders, the elevator planes, and kindred surfaces, and in the other types of military flying machines rubberized cloth is used to protect the pilots and passengers. The yoke by which the aviator manipulates the wings, by swinging his body from side to side, is very frequently cushioned with rubber; and the steersman's grip is also often coated with the same material. As in the dirigible, stays are covered with rubber tubing at points to prevent chafing, and rubber tubing and rubber packing lend their services in connection with the motors and fuel supply system. In aeroplanes equipped with wireless, rubber does duty again in the form of insulation, and in the latest of these military flying machines it plays its part in the telephone system by which the pilot and his passenger can communicate with each other, despite the noise of the propeller, the roar of the engines, and the deafening rush of the passing wind.

The military aeroplane would be of doubtful use if it could not rise from the ground quickly or make a successful landing after a reconnoitring flight. These machines weigh quite a ton as a rule, and it is something of a problem to bring a body as heavy as this to a halt when landing at any speed admitting of proper control. Remember that these air scouts cannot count upon smooth roadways from which to make their starts nor turf-covered level stretches for their landing. They must take the ground as they find it, and this requires a good deal of ruggedness in the supporting chassis with its wheels. Therefore, in order to reduce the landing impact to a minimum, and, on the other hand, to facilitate getting up sufficient speed for the initial rise, the wheels of the chassis are equipped with resilient tires of rubber. Thus this buoyant material is indispensable to getting the airman aloft and to making his return to ground a safe one under normal circumstances.

We have made no mention of the very latest improvement in mechanical flight; that is, the automatic stabilizer. But Americans should be proud of what has been accomplished in this direction by Elmer A. Sperry through his gyroscopic apparatus. Compressed air and electricity are his motive agents for this wonderful steadying mechanism, and the precision of operation and the manner of its general functioning hinge to a goodly extent upon the aid lent by rubber in one direction or another.

THE OXYGEN OUTFIT RESTORING AN EXHAUSTED AVIATOR.
The man on the left has a respirator by which he can work in foul air or go into the gas bags of an inflated war balloon for the purpose of making repairs.

Tubing, packing, and insulation are needful to the gyroscopic stabilizer's construction, and rubber meets these demands best.

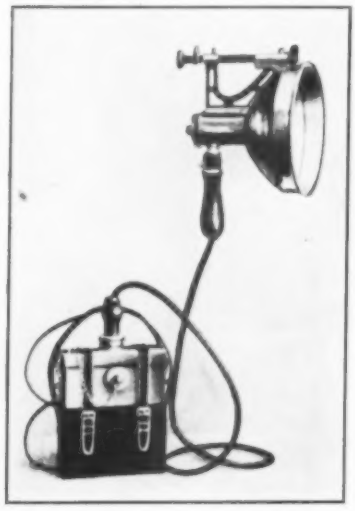
But, as already said, the most interesting contribution rubber makes to aviation is the part it plays in the mechanisms that make it possible for the aviators to breathe comfortably in the rarefied air of great altitudes, and even under the water, in case they fall and are temporarily submerged. These mechanisms, depending for their effective operation on the liberal use of rubber, enable the aviator to utilize his full energy of body and mind under conditions which without this apparatus would render life impossible. It is the miraculous exploits which the aviator, with the aid of science, is able to perform that make the strongest appeal to the imagination.

Perhaps a recent incident may be cited, showing the dramatic side of this service. Captain von Falkenhayn, the son of the noted German general of that name, went aloft in a "Taube" to reconnoiter the position of the Allies, near Amiens. He was overtaken by a French aviator as he was returning to his own lines. Suddenly, he swung in his flight and turned back upon his foe, who was just about to fire, and there in the air occurred a duel between the two pilots. A chance bullet struck the captain in the heart, and immediately he plunged with his unguided craft to the earth.

In a duel of this sort, the effort of each antagonist is to mount above his rival so that the pilot below shall be blanked by the wings of his own machine and thus hampered in firing at his foe. Often, in this struggle for the ascendency, the rival aviators will mount thousands of feet into the air, and where the temperature may be bitterly low. The Germans have made special provision for this exacting service, and rubber figures in the ingenious apparatus which makes it possible for the Kaiser's aeronauts to meet the physical hardships which this duty imposes. Cold soon saps the energies of a human being and, at the same time, renders the sufferer incapable of performing his work effectively. The hands become numb and are unable to operate levers, etc., by which a flying machine is controlled.

Again, long flights, with accompanying chill, weaken the aviator, and this exhaustion may come at a crucial stage of his journey, high aloft.

Respirable air is normally composed of 21 parts of oxygen and 79 parts of nitrogen. Nitrogen is much lighter than oxygen, hence the former tends to rise just as the latter is disposed to settle and to cling to the earth's surface. The higher one mounts, the greater the percentage of nitrogen, and the less that of the vitally necessary oxygen which helps in body-building, heat-making, and blood-cleansing, hence the risks run in ascending to great heights.



PORTABLE SIGNAL LAMP FOR AVIATORS.

To meet this situation, the Kaiser's air pilots are supplied with small reserve tanks, holding compressed oxygen, and the rubber hose leading therefrom is attached to a mouthpiece, also made of rubber, hanging within easy reach of the aviator; or, again, in another form, can be attached to the head and placed over the nose and mouth before the airman mounts skyward. All he has to do is to turn a little valve and at once he is stimulated by this concentrated breath of life. If he is cold and numb, inhaling the oxygen for a few moments will suffice to excite the circulation of the blood and to carry a sense of warmth to the very extremities of his body.

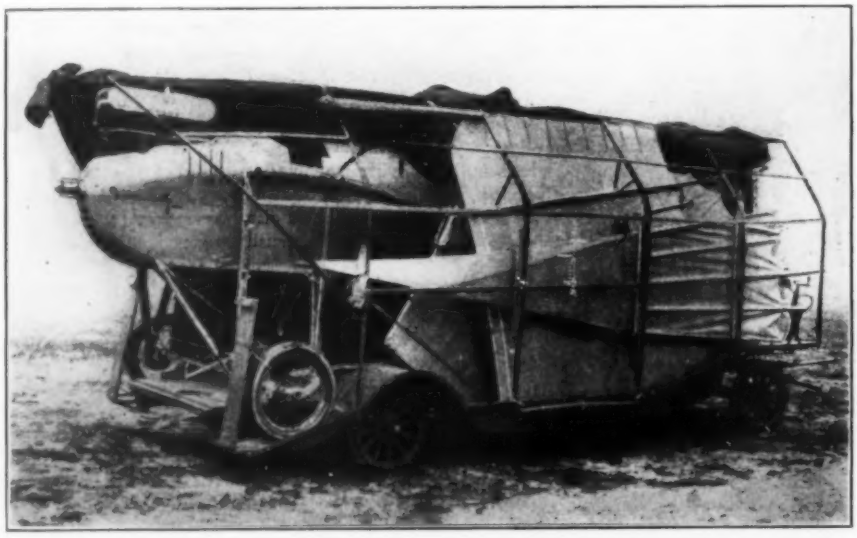
But the airman has reason to fear water, and more than one of them have already been drowned by dropping into seas, lakes, and rivers during long flights. Some of the German air pilots who have caused alarm in England have fallen into the North Sea and the Channel; but these aviators are safeguarded, both for work aloft and against accidental dropping into the water. The German pilots are able for a limited time even to breathe beneath the surface of the sea. The airman caught in the rigging of his wrecked machine and held under water, instead of struggling violently and thus hastening his end, can now work deliberately for a considerable interval in getting clear of the tangle. In fact, he can breathe submerged by reason of the emergency apparatus now supplied him, for half an hour. When not used for this purpose the same equipment can be drawn upon to refresh the exhausted aeronaut.

This safety auxiliary for aeroplane service consists of an oxygen tank, having a storage capacity of 60 litres, a caustic soda cartridge for the cleansing of the exhaled air, an elastic breathing pouch of rubber slung over one shoulder, and the connecting tubes and mouthpiece we have already described. The exhausted air passes through the cartridge, where it is freed of carbonic acid gas, then, mixed with new oxygen from the metal cylinder, flows thence into the breathing sack. In the mouthpiece are two cleverly arranged valves, by which the circulation of the exhalation and the respirable air is maintained. The whole outfit is attached to a life-belt or vest of rubber, which fits the aviator like a jacket. This safety coat serves the double purpose of a warmth-giving outer garment and a life-belt.

This jacket does not interfere with the aviator's freedom of movement. Upon his chest are the caustic soda cartridge and the oxygen flask, which are of such form and size that they do not hamper him. Should the airman drop into the water he can instantly place the breathing pipe in his mouth and open the valve controlling the supply of oxygen. This done, the rest of his jacket, filled with air, will hold him afloat indefinitely.

A somewhat similar equipment has been designed for the officers and crew of the great Zeppelins of the German air fleet. Because of their enormous sizes, these dirigibles are likely targets for the guns of an enemy when sailing low, especially in the daytime. Therefore, it is necessary that the Zeppelins, for their own security, should always travel at much greater heights than the more active and the comparatively small aeroplane. Besides this, the men in the dirigibles must be exposed to the cold for longer periods than the pilot of a flying machine, hence it is of the utmost importance that officers and crews should have safety equipments from which they can draw invigorating oxygen from time to time. A simpler form of the mechanical respirator has been devised for the dirigibles; but, again, india-rubber is indispensable for the air-bags, the connecting tubes, and the mouthpiece.

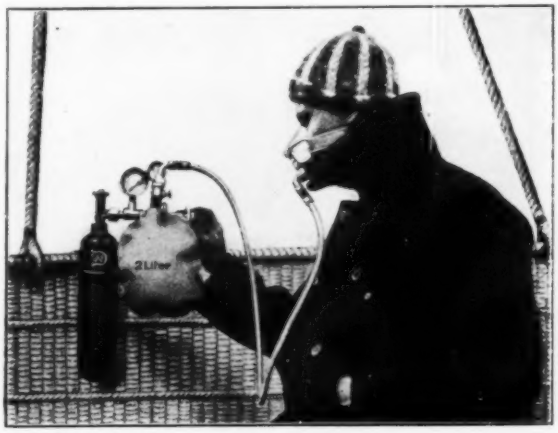
From a military standpoint, these protective auxiliaries are demanded, because the slower-moving and bulky Zeppelins cannot dodge the agile aeroplane, but must seek to gain the better of it by soaring to greater heights and thus either get the "drop" on the flying machine or "freeze out" the pilot so that he won't dare follow to the dizzy altitudes. At this stage of the game the people on the airship must have more oxygen than the enveloping atmosphere contains, and it is then that the respirators are called into service.



A MILITARY FLYER PACKED FOR TRANSPORTATION.

There are other directions in which india-rubber is lending its peculiar characteristics towards making dirigibles and aeroplanes more effective. It will be remembered that when the German airmen dropped bombs on some of the English coast

towns during the night of January 19, their approach was heralded by short and long flashes—the dots and dashes of a signal code—by which the aircraft maintained communication with one another and, it is said, also were similarly guided upon that occasion by spies posted on housetops. Be the latter as it may, there is no doubt about the existence of flashlight signal



The Respirator for High Altitude Flights in Dirigibles.

equipments for German aeroplane pilots, and these have been of the utmost use both day and night from the very beginning of the war.

A scouting pilot's work would be greatly hampered if he had to return to his base to tell the results of his observations, and this is especially so when helping hidden artillery to find the range of the foe and to plant the projectiles just where they could do the greatest execution. A short time before hostilities broke out, there was perfected in Berlin an electric signaling mirror—in effect a new form of military heliograph by which light flashes could be made by the aviator and similarly answered by his friends on the ground. These flashes can be seen night or day for a good many miles.

Compactness and lightness were recognized essentials. The electricity is stored in batteries carried in a knapsack which can be strapped upon the pilot's back, and sufficient energy can thus be furnished for many hundred signals. All of the insulations are rubber. The signaling apparatus is composed essentially of the following parts,—A reflector, an incandescent lamp of high power, a focusing device for the lamp, a directing tube, or aiming tube, and a switch controlling the lighting circuit. A rubber eyepiece is attached to the aiming tube.

The purpose of the aiming tube, which is also equipped with lenses to improve the scope of vision, is to enable the pilot to direct his light-beams with precision upon a chosen point and, at the same time, to restrict the zone in which the flashes can be seen. The way of working is decidedly simple. The operator looks through his tube and aims the lamp just as he would a gun, and then he makes, by his switch key, long and short flashes agreeably to his code. The whole outfit, including the battery, does not weigh quite twelve pounds.

It is not alone in the directions we have already mentioned that India-rubber is sharing in military aviation. The pilots of seaplanes, which must rise from the water and return to that supporting medium from time to time, are protected from neck to foot by a union-suit of rubber, and rubber clothing on a lesser scale is worn by all aviators. Again, the headguards that all air pilots wear to protect the skull from fracture when falling, owe their resilient virtue to thick ribs and bands of the best of soft rubber.

In short without rubber aviation as a branch of military science would cease to exist.

FURTHER FELICITATIONS ON OUR 25TH ANNIVERSARY.

IT will be recalled that in our January issue we devoted several pages to the reproduction of letters that had been received in this office from friends at home and abroad referring to the fact that this journal had completed 25 years of continuous publication. A number of very pleasant tributes have been received since January. Two of these we reproduce below, one from old friends in Germany and the other from our highly esteemed contemporary in France. The first is from Drs. Marckwald and Frank, the German chemists whose work is familiar to everybody interested in the manufacture of rubber.

"To the Editor of The India Rubber World:

"In the January number of The India Rubber World, which fell into our hands yesterday, we note that on the first of January you were able to celebrate the 25th anniversary of your publication. Although we are late, we do not wish to let this go by without conveying to you our best wishes. We hope that the publication will continue to develop in the next 25 years under the same management.

"Owing to political conditions we have not, in the last few months, had an opportunity of communicating with you, but we hope that with the end of this terrible war relations will again be established between the different nations and we will be happy then to correspond more frequently with you.

(Signed) "Dr. Eduard Marckwald.

"Berlin, February 8, 1915." "Dr. Fritz Frank.

The second pleasant reference to our 25th anniversary appeared in the February issue of "Le Caoutchouc & la Gutta-Percha":

"In October last our excellent American contemporary reached the 25th year of its existence. On that occasion its friends—and they are innumerable—paid their compliments. Although events have made us very late, we do not wish to miss the opportunity.

"The great American publication, under the masterly direction of Mr. H. C. Pearson, deserves the admiration and the very best wishes of all its contemporaries. It would not be possible to find a more agreeable confrere than Mr. Pearson, and his publication has a distinctive character which places it very high in our esteem. This publication contains the greatest variety of matter, presented in the best manner, without either dullness or pedantry, and with just a touch of that delicious humor which is the heritage of Americans of culture and refinement.

"Our best wishes to The India Rubber World! May it continue to prosper under the able management of Mr. Pearson, to whom we extend our compliments and heartiest congratulations."

PROPOSED RATE INCREASE ON TIRES.

The railroads are making efforts to increase the rate of freight on shipments of pneumatic tires in carload lots, by transferring these from class three to class two of their rate schedules. This change would mean an increase in freight charges on tires over and above the five per cent. general increase consented to by the Interstate Commerce Commission.

Tire manufacturers consider this additional increase as quite unfair, especially in view of the fact that tires have materially decreased in value since the third class rating was fixed, and, together with automobile manufacturers, they are protesting through the National Automobile Chamber of Commerce. Mr. J. S. Marvin, general traffic manager, National Automobile Chamber of Commerce, has taken up the matter with the railroads.

The transfer of pneumatics from third to second class would apply only to transportation in the East, and would not affect the rates west of Chicago. This transfer would mean an increase from New York to Chicago of about 15 cents per hundred pounds on shipments of carload lots.

Foreign Import Duties on Motor Vehicle Tires.

THE table given below shows the rates of duty on tires for motor vehicles of all descriptions, including motorcycles, imported from the United States into foreign countries.

The column marked "Tariff No." gives, for convenient reference, the paragraph covering tires in the original tariff.

The classification column indicates how the rates on tires for motor vehicles are classified in the original tariffs. In reference to those marked "Articles Not Specified" it is not to be inferred that an article so described is necessarily included in the blanket clause "Articles Not Specified." Assimilation is widely practiced in foreign tariffs and articles are frequently associated with those which they resemble, either in composition or use, even though not strictly covered by the wording of the corresponding item of the tariff. Articles covered by customs decisions and customs practices, rather than by definite tariff schedules, are printed in italics.

The column marked "Weight" shows whether duties are levied on net or gross weight or include simply the inner packings.

NORTH AMERICA.

Importing Country.	Tariff No.	Classification Under Which Tires Are Rated.	Weight.	Rate per 100 lbs., U. S. Currency.	Rate per cent. ad valorem.
Canada	592	Tires of rubber, fitted or not	...	.....	35
Mexico	634b	Rubber tires, with or without leather parts	Net	$16.70	....
	632	Articles of india rubber not specially mentioned, including inner tubes	...	11.38	.....
Newfoundland	95	Automobiles, and parts for same, including tires	...	.....	49.5
BRITISH WEST INDIES:					
Antigua	...	Articles not specified	...	.....	13.33
Bahamas	...	Articles not specified	...	.....	20
Barbados	...	India rubber manufactures	...	.....	11.25
		Articles not specified	...	.....	10
Bermuda	...	Articles not specified	...	.....	10
Dominica	...	Articles not specified, including tires	...	.....	12.5
Grenada	...	Articles not specified	...	.....	10
Jamaica	...	Articles not specified	...	.....	16.66
Montserrat	...	Articles not specified	...	.....	13.33
St. Christopher-Nevis	...	Articles not specified	...	.....	11
St. Lucia	...	Articles not specified	...	.....	15
St. Vincent	...	Manufactures of rubber	...	.....	12.5
		Articles not specified	...	.....	10
Trinidad and Tobago	...	India rubber manufactures	...	.....	10
Turks and Caicos Isl.	...	Articles not specified	...	.....	10
Virgin Islands	...	Articles not specified	...	.....	10
DANISH WEST INDIES:					
St. Croix	...	Articles manufactured, not specified	...	.....	12.5
St. Thomas and St. John	...	Articles not specified	...	.....	6
DUTCH WEST INDIES:					
Aruba, Bonaire, Curaçao, Saba, St. Eustache, St. Martin	...	Articles not specified	...	.....	3
FRENCH WEST INDIES..	620	Pneumatic tires, casings and inner tubes	Net	13.13	.....
(Same as France)	620	Brake shoes and solid tires for vehicles	"	8.75	.....
	620	Other articles of rubber, including tubes for tire pumps	"	7.88	.....
INDEPENDENT WEST INDIES:					
Cuba	227/9	Vehicles, including rubber tires and other separate parts not specified	...	.....	25
Dominican Republic..	1004a	Rubber tires, combined or not with other materials, and inner tubes	Net	36.29	.....
Haiti	1518	Articles not specified, including solid and pneumatic tires	...	.....	26.2

CENTRAL AMERICA.

British Honduras	...	Articles not specified	...	.....	12.5
Costa Rica	68	Rubber tires for automobiles and other vehicles.	Gross	4.22	.....
Guatemala	1119	Iron cycles of all kinds, including solid or pneumatic tires	"	7.21	.....
Honduras	2565	Vehicles such as automobiles, and tires therefor	"	4.28	.....
Nicaragua	1484	Motor cycle tires	"	5.72	.....
	1493	Tires for motor cars and omnibuses	"	3.81	.....
	1492	Tires for commercial motor vehicles	"	2.86	.....
Panama	...	Articles not specified	...	.....	15
Salvador	259	India rubber tubes, including tires for automobiles, cycles, etc.	Gross	14.08	.....

SOUTH AMERICA.

Argentina	363	Casings, including solid tires	(*)	10.51	.....
	364	Inner tubes	(*)	10.51	.....
	365	Non-skid attachments	(*)	7.88	.....
	372	Other parts, including tire protectors of leather and metal	(*)	.....	12
Bolivia	227	Articles of india rubber, including solid and pneumatic tires	Gross	20.29	.....
Brazil	806	Pneumatic tires for automobiles	...	.....	12.8
	1033	India rubber and gutta percha manufactures not specified	...	.....	87.2
		From United States (preferential rate)	...	.....	70.7
Chile	423	Rubber tires, solid	(*)	19.87	.....
	424	Pneumatic tires	(*)	39.74	.....
	3217	Cycles with pneumatic or solid tires	Net	24.83	.....
Colombia	851	Rubber tires, solid or pneumatic	Gross	0.93	.....
	854	Wheels for automobiles or other vehicles with or without rubber tires	"	0.93	.....
Ecuador	14	Rubber tires	(*)	9.96	.....
Paraguay	283	Casings	...	36.77	.....
	284	Inner tubes	...	36.77	.....
	285	Non-skid attachments	...	27.58	.....
	1089	Rubber tires for automobiles	...	36.77	.....
Peru	1763	Rubber tires for bicycles, etc.	(*)	36.42	.....
	1767	Rubber tires for automobiles	Gross	24.28	.....
Uruguay	...	Articles not specified, including motor cycles and tires	Gross	.....	39.5
Venezuela	ex 225	Rubber tires	Gross	10.28	.....
British Guiana	...	Manufactures of india rubber	...	.....	16.5
Dutch Guiana	...	Articles not specified	...	.....	10
French Guiana (Same as France)	620	Pneumatic tires, casings and inner tubes	Net	13.13	.....
	620	Brake shoes and solid tires	"	8.75	.....
	620	Tubes for tire pumps, etc.	"	7.88	.....

(*) Including inner packing.

EUROPE.

Austria-Hungary	320c	Pneumatic tires (casings and inner tubes)	Net	13.81	.....
	551	Wheels for bicycles, finished, imported separately, each not more than 9 kilos (19.84 pounds), or including tire, 12 kilos (26.45 pounds):			
		Without pneumatic tires	"	1.84	.....
		With pneumatic tires	"	2.21	.....
	344	Tire protectors of leather	"	6.91	.....
Belgium	10	Solid tires	Net	5.69	.....
		Pneumatic tires:			
		Casings with studded leather band	"	11.38	.....
		Other casings	"	10.16	.....
		Inner tubes	"	14.88	.....
Bulgaria	313	Manufactures of india rubber, including casings and inner tubes	Net	5.25	.....
Cyprus	...	Articles not specified	...	.....	10

Finland	187	Manufactures of india rubber:			
		1. Without admixture of other materials, including inner tubes for pneumatic tires..	Net	5.30	.....
		2. With admixture of other materials, including casings for pneumatic tires	"	9.55	.....
	231	Solid rubber tires.....	"	1.33	.....
France	620	Pneumatic tires, casings and inner tubes.....	Net	13.13	.....
		Brake shoes, solid tires, rough, partly manufactured, or finished.....	"	8.75	.....
	620	Belting, tubes and other articles of india rubber or gutta percha, including tubes for tire pumps	"	7.88	.....
Germany	574	Inner tubes	Net	6.48	.....
	578	Rubber tires; also tire casings of textile materials impregnated or coated with india rubber, or with layers of india rubber	"	6.48	.....
Gibraltar	...	Articles not specified.....	...	.....	Free
Greece	319d	Tires of india rubber, combined or not with other materials, for motor vehicles or bicycles	Net	1.03	.....
Italy	371b	Manufactures of india rubber and gutta percha, combined with fabrics, including pneumatic tires, casings and inner tubes	Net	5.25	.....
Malta	...	Articles not specified.....	...	.....	Free
Netherlands	124	Manufactures of rubber..	...	.....	5
Norway	218	Tires for motor cycles...	Net	3.65	.....
	730b	Tire casings for automobiles	"	3.65	.....
Portugal	440	Rubber casings and inner tubes for motor vehicles	Net	2.13	.....
	438	Leather tire protectors for motor vehicles	"	6.35	.....
Roumania	460a	Manufactures of india rubber combined with other materials, including pneumatic tires	(†)	5.06	.....
	462	Manufactures of india rubber, not specified, including solid rubber tires for heavy vehicles.....	(†)	4.90	.....
	753	Tire protectors of leather combined with iron....	(†)	8.75	.....
Russia	88	Manufactures of india rubber, not specified, combined or not with other materials, including tires for motor cycles, without metal parts except valves	Net	17.11	.....
	173	Parts of vehicles other than cycles, including rubber tires	"	21.39	.....
Servia	394	Solid and pneumatic rubber tires	Net	10.51	.....
Spain	699	Casings and inner tubes of india rubber, gutta percha and similar materials	Net	23.64	.....
	697	Solid rubber tires for vehicles	"	17.51	.....
	698	Solid rubber bands with metal mounting	"	10.51	.....
Sweden	636	Solid rubber tires.....	Net	9.73	.....
	642	Rubber parts of cycles and motor cycles not specified, combined or not with other materials, such as casings or parts thereof and rubber parts of pedals and brakes	"	19.45	.....
	643	Articles of soft rubber not specified, including pneumatic tires, casings and inner tubes.....	"	14.59	.....
	1098	Wheels with rubber tires.	...	.....	15
Switzerland	...	India rubber and gutta percha, pure or mixed:			
		Not combined with fabrics or metals—			
	517	Strips and bands, including solid tires.	Gross	0.088	.....
	518	Hose, tubes and pipes, including pneumatic tires, casings and inner tubes without metal joints or valves	"	0.44	.....
		Combined with fabrics or metal—			
	521	Strips and bands, including solid tires.	"	0.44	.....
	522	Hose, tubes and pipes, including pneumatic tires, casings and inner tubes with metal joints or valves	"	0.70	.....
	529	Manufactures of india rubber and gutta percha, not specified, including casings with non-skid protectors of leather with steel studs.....	"	2.19	.....
Turkey	...	Articles not specified.....	...	.....	15
United Kingdom	...	Articles not specified.....	...	.....	Free

(†) With immediate packing.

ASIA.

BRITISH ASIA:					
Aden	...	Articles not specified.....	...	.....	Free
Ceylon	...	Articles not specified.....	...	.....	5.5
Fed. Malay States...	...	Articles not specified.....	...	.....	Free
Hongkong	...	Articles not specified.....	...	.....	Free
India	...	Articles not specified.....	...	.....	5
North Borneo	...	Articles not specified.....	...	.....	10
Sarawak	...	Articles not specified.....	...	.....	Free
Straits Settlements..	...	Articles not specified.....	...	.....	Free
DUTCH EAST INDIES...	...	Articles not specified, including rubber tires for motor cycles	...	.....	10
FRENCH INDO CHINA.. (Same as France)	...	Pneumatic tires, casings and inner tubes.....	Net	13.13	.....
		Brake shoes and solid tires	"	8.75	.....
		Belting, tubes, valves and other articles of rubber, combined or not with cloth or other materials, including tubes for tire pumps	"	7.88	.....
China	...	Articles of india rubber..	...	.....	5
Chosen (Korea)	...	India rubber manufactures	...	.....	8
Japan	564	Parts of automobiles, except motors, including solid and pneumatic rubber tires for automobiles	Net	.....	25
	566	Cycle tires	"	42.92	.....
Persia	42	Vehicle accessories and separate parts, including pneumatic tires....	...	.....	10
Siam	...	Articles not specified.....	...	.....	3

AFRICA.

Abyssinia	...	Articles not specified.....	...	.....	10
Egypt	...	Articles not specified.....	...	.....	8
Liberia	...	Articles not specified.....	...	.....	12.5
Morocco	...	Articles not specified.....	...	.....	12.5
BELGIAN AFRICA:					
Congo	...	Articles not specified.....	...	.....	10
BRITISH AFRICA:					
Union of South Africa	...	Articles not specified, and tires for motor vehicles	...	.....	15
Mauritius	...	Articles not specified.....	...	.....	12
Nigeria	...	Articles not specified.....	...	.....	Free
Zanzibar	...	Articles not specified.....	...	.....	7.5
FRENCH AFRICA:					
Algeria (Same as France)	620	Pneumatic tires, casings and inner tubes.....	Net	13.13	.....
		Brake shoes, solid tires for vehicles, rough, partly manufactured or finished	"	8.75	.....
		Belting, tubes and other articles of india rubber or gutta percha, including tubes for tire pumps	"	7.88	.....
ITALIAN AFRICA:					
Eritrea	...	Articles not specified.....	...	.....	8
Libia	...	Articles not specified.....	...	.....	11
Somaliland	...	Articles not specified.....	...	.....	15

OCEANIA.

Australia	350b	Pneumatic rubber tires and tubes therefor, valved or unvalved:			
		1. Covers (casings), each 2½ pounds or less; tubes each 1 pound or less, ad valorem..	...	.....	25
		2. Covers (casings), each over 2½ pounds; tubes weighing each over 1 pound, 36 cents per pound or ad valorem, whichever rate returns the higher duty	...	36.00	25
	c	Rubber tires, other than pneumatic	...	.....	25
New Zealand	362	Rubber tires, pneumatic rubber tires and outside covers of rubber and inner tubes	...	.....	Free
		Other tires	...	.....	20
	433	Rubber cloth	...	.....	Free
Guam	...	From United States.....	...	.....	Free
Hawaii	...	From United States.....	...	.....	Free
Philippine Islands	...	From United States.....	...	.....	Free
Tutuila	...	Articles not specified.....	...	.....	10

Recommendations for the Treatment of Latex and Curing of Rubber.

THE Rubber Growers' Association, of London, has prepared a number of recommendations covering all the important features of securing the latex and curing the rubber. These recommendations have been printed in the form of a hanger 2 feet long by 13 inches wide and given permanency by being backed with linen and finished top and bottom with brass edging, the intention being, evidently, that the banner shall hang on the wall for easy reference. This will undoubtedly prove a great convenience to the workmen in the factories on the plantation, as the instructions which they should follow will always be immediately under their eye. As a matter of fact, an intelligent workman in a short time is likely to have these rules for preparing rubber, given, as they are, in condensed form, indelibly impressed upon his memory.

The recommendations are reproduced in full below:

THE RUBBER GROWERS' ASSOCIATION (INCORPORATED).

RECOMMENDATIONS FOR THE TREATMENT OF LATEX AND CURING OF RUBBER. COMPILED BY THE UNIFORMITY COMMITTEE FROM INFORMATION SUPPLIED BY THE SCIENTIFIC STAFF.

GENERAL.

1.—CUPS, BUCKETS AND OTHER UTENSILS should be selected with a view to ease in cleaning and should be kept absolutely clean. Vessels made of copper, or any alloy of copper, and kerosene tins or receptacles with similar angles should be avoided.

2.—WATER IN CUPS.—In most cases addition of water is quite unnecessary. A little clean water may be used in very dry weather, when the latex tends to coagulate very quickly. In some instances a little formalin or sodium sulphite (*not* bisulphite) may be added, *but application should be first made to the laboratory for advice before using these reagents.*

3.—WATER ON THE TRANSVERSE CUTS is not advisable. Often the latex coagulates as a result of employing water on fresh cuts.

4.—BARK SHAVINGS and other impurities should not be allowed in the cups or buckets.

5.—COLLECTION OF LATEX.—Latex should not be allowed to stand in the field. The earliest opportunity for collection should be taken. It is recommended that in collecting, the following grades be recognized and kept separate:

(*a*) Clean uncoagulated latex; (*b*) Lump, coagulated in the cups; (*c*) Rinsings from the cups.

6.—TRANSPORT OF LATEX.—Every possible means of facilitating quick transport should be taken. When distance of transport is great, out-station coagulating houses should be erected.

IN THE FACTORY.

RECEPTION OF LATEX.

7.—PRELIMINARY TREATMENT.—The latex should be received if possible on a verandah, so that there is no necessity for coolies to enter the building, thus avoiding the presence of dirt in the factory.

8.—SUPERVISION.—The reception of latex should be under direct European supervision. Causes of defects in preparation of the finished rubber are thus often detected.

9.—CLEANLINESS in utensils and methods is absolutely necessary; any neglect in this respect is sure to detract from the quality of the rubber.

10.—STRAINING OF LATEX should be thorough, care being taken to see that the mesh is in good order.

11.—BULKING OF LATEX is strongly recommended. The mixing of all latex undoubtedly tends to produce a rubber of greater uniformity.

12.—SODIUM BISULPHITE.—For crepe manufacture dissolve ½ lb. of the powder in 1 gallon of water. This will be sufficient for 40 gallons of undiluted latex. The solution should be well stirred in after bulking and before the addition of acid. Larger quantities of sodium bisulphite are quite unnecessary. Sodium bisulphite should not be used in making sheet rubber.

NOTE.—Latex containing more than 35 per cent. of rubber may be taken as "undiluted latex."

COAGULATION.

13.—COAGULANT.—Acetic acid is recommended as the best coagulant at present.

14.—STRENGTH OF SOLUTION.—Stock solutions should be made up as follows:

(*a*) FOR MAKING CREPE.—Take one part of concentrated acetic acid, of 98 to 100 per cent. strength, and dilute it with 20 parts of pure water.

(*b*) FOR MAKING SHEET.—Take one part of concentrated acid, of 98 to 100 per cent. strength, and dilute it with 200 parts of pure water.

If in making these stock solutions a more diluted acid be employed such as an acid of 80 per cent. strength, a proportionately greater amount of acid must be taken: thus with an 80 per cent. acid. 1¼ parts must be taken instead of one part.

In effecting coagulation the maximum amounts of these stock solutions, which need never be exceeded, are:

(*a*) FOR CREPE.—1 part of stock solution to 50 parts of undiluted latex.

(*b*) FOR SHEET.—1 part of stock solution to 5 parts of undiluted latex.

It will frequently be found that less than these amounts is enough to produce complete coagulation, and the minimum amount which is effective should be ascertained by trial.

If the latex has been diluted, a proportionate reduction in the amount of the coagulant may be made: thus if 50 gallons of pure latex have been diluted up to 100 gallons by adding water, then only one part of stock solution (*a*) need be used for 100 parts of such diluted latex.

15.—MIXING of acid and latex should be thorough. This is best effected by means of broad wooden paddles. Sticks must not be allowed for this purpose. When making sheet the scum should be removed and added to the lumps:

(*a*) For the preparation of crepe rubber or sheet rubber in coagulating tanks any quantity of latex may be coagulated in bulk;

(*b*) For sheet rubber, when ordinary dishes are used, not more than 50 gallons of latex should be treated with acid in one batch, as the latex sometimes coagulates before all can be poured out into the dishes. It is sometimes expedient to add water to the latex or to use a diluted solution of formalin to prevent rapid coagulation. *In such cases advice should be obtained from the laboratory.*

PREPARATION OF RUBBER.

16.—AMOUNT OF WORKING.—The extent to which rubber is worked on the machines should be the minimum found necessary.

17.—THE THICKNESS OF THE RUBBER determines the rate of drying. Pale crepe should be rolled out thin for drying, especially thin for artificial drying, and this can subsequently be worked into blanket crepe if desired. Sheet rubber when dry should not exceed ⅛ in. in thickness.

18.—SMOKE CURING.—Sheets should always be as uniform in thickness as possible, and the period of smoke curing should also be uniform. Sheets not exceeding ⅛ in. thickness should usually dry in 9 to 10 days.

NOTE.—The best temperature for smoking is 120 deg. to 130 deg. F.

DEFECTS.

19.—Defects.—

CREPE.

Defects to Be Avoided.	*Preventatives.*
(1) Oil streaks.....	See that oil from the bearings does not get on to the rubber— (a) through use of too much lubricating oil; (b) through worn bearings. These should immediately be replaced, as oil from worn bearings contains particles of copper or verdigris, which gradually eat into the rubber and reduce it to the consistency of treacle. (c) by taking care that the crepe does not come near the edge of the rolls or other parts of the machinery which may be oily. Trays under the washing mills should not project beyond the ends of the rolls.
(2) Dark streaks.....	Avoid oxidation and surface darkening of portions of the coagulated latex by the use of a little sodium bisulphite in the latex (for proportion, see paragraph 12 above). Do not allow the rollers to grind against each other.
(3) Mottling, Spots and Discoloration.	Keep the crepe thin and do not hang it too closely in the store so that the rubber dries quickly. In case of persistent spot trouble, apply to the laboratory.
(4) Mouldiness.....	Proceed as in (3) and see that the rubber is thoroughly dry before packing.
(5) Cotton Fluff.....	Do not use cotton waste for keeping the oil off the rolls. If a pad is necessary, use one of cloth or flannel. Avoid using too much oil.
(6) Tackiness (Heat and stickiness).	See that rubber is not exposed to direct rays of the sun. Scrap should be brought in and washed as soon as possible—if there is unavoidable delay in washing, the scrap should be kept in water.

SMOKED SHEET.

Defects to Be Avoided.	*Preventatives.*
(7) Mouldiness.....	Efficient smoking (see also under (8)).
(8) Rust (Stretching rusty, resinous, or opaque).	The sheet should be scrubbed down with a stiff brush and plenty of water a few hours after rolling, allowed to drip for one hour, and then put into the smoke-house. If the latex is very rich, dilution with water before coagulation to a proportion of 1½ to 2 lbs. of dry rubber to the gallon is recommended.
(9) Over Smoking (Dark glossy surface).	This may be caused by the use of too large a proportion of cocoanut husks, rubber seed or similar oily material. The timber used should not be wet and the fires must not be allowed to burst into flame. Do not use cocoanut oil for smoking.
(10) Tar Deposits....	See that the roof of the smoke house does not drip owing to condensation.
(11) Thickened edges..	Take care that the edges are not doubled over in rolling, as this gives sheets of an uneven thickness and liable to cut virgin.

CARE OF MACHINERY.

20.—Machines must be well cleaned and inspected each day before commencing work. At frequent intervals (say, once a week) they should be well cleansed of all traces of oil by means of a 5 per cent. solution of caustic soda. This must be applied under European supervision, by means of a cloth fastened to the end of a stick. Afterwards the machines should be set in motion and the water allowed to run for some time, say ten minutes.

21.—Lubrication.—The engine driver, or other responsible person, should do this work.

22.—Worn Parts must be replaced at once. Worn bearings are often the cause of "green streaks" in crepe rubber. When the grooves of rolls have becomes worn they cease to grip the rubber thereby reducing the output of the machine and overworking the rubber.

SORTING AND GRADING.

23.—Great attention and careful supervision are necessary for these operations. The fewer grades the better, and the regularity of each grade is most important.

The perfect assortment should consist of:

No. 1.—Fine Sheet or Fine Crepe	Made from the tree or liquid latex.
No. 2.—Clean light brown Crepe	Made from lumps, which cannot go through the strainer, and skimmings.
No. 3.—Scrap Crepe	Made from tree scrap.
No. 4.—Dark Crepe	Made from bark shavings and the lower quality of scrap crepe.

Earth rubber and any tacky rubber should be packed separately.

Color.—Evenness is most desirable and any discolored or mottled pieces must not be left in the first quality.

In No. 2 clean brown crepe, no grit or minute pieces of bark should be left in the rubber.

All pieces of scrap showing the slightest traces of heat must be picked out.

The Crepe usually known on the market as "specky brown" is often insufficiently washed; bark or other impurities left in the rubber reduces the value.

No. 4, the lowest grade, naturally varies very much and special attention to washing is most advisable.

Smoked Sheets should only be of one quality. Any sheets oversmoked or showing imperfections should be packed separately.

Packing.—Opinions differ as to the suitability of cases employed, but there is no doubt that the wood must be planed, so that no splinters can get into the rubber.

As a general rule, the three-ply wood cases specially made for rubber are the most desirable. Care should be taken to see that the inside of the package is thoroughly clean before packing.

19 × 19 × 24 inches measurement and capable of holding up to about 200 lbs. is recommended for sheet.
21 × 21 × 24 do. do. do. about 155 do. do crepe.

Other cases which have proved satisfactory are the Japanese Momi and the Cochin case. Ordinary (local) native made chests are undesirable. Rubber should never be packed in bales.

N. B.—Consumers' worst enemy in Rubber is heat and stickiness, a very little of which will often spoil an otherwise good parcel

38, Eastcheap,
London, E. C.,
January, 1915.

The Rubber Growers' Association, of London.

THE most impressive feature of the entire rubber industry during the last ten years has been the extraordinary growth of the product of the rubber plantation. If anyone were disposed to question this statement he has only to look at the tabulation of plantation production. Ten years ago, in 1905, the sum total of plantation rubber amounted to 145 tons. In 1914 it had reached 70,000 tons, with the probability that the production for the present year will equal 85,000 tons. This certainly is a phenomenal development, and some of it at least is due to the excellent work of that strong and efficient organization, the Rubber Growers' Association, of London.

JOHN MCEWAN.

EDWARD L. HAMILTON.

This association was formed in June, 1907. A number of men interested in the plantation industry were called together at that time by Mr. John McEwan. Among those who responded to his call were Mr. H. K. Rutherford, Sir William Hood Treacher, Mr. A. Bethune, Mr. W. F. de Bois Maclaren and Mr. T. C. Owen. Mr. H. K. Rutherford was elected the first chairman of the association, which started with a membership of 60, representing 23,000 cultivated acres. Up to that time the interests of the rubber planters had been looked after in a general way by the Ceylon Planters' Association, in London, which concerned itself with the welfare of tea planting and other activities on the island; but as the Eastern rubber production of the preceding year, 1906, had reached a total of 510 tons, with the promise of extremely rapid growth, it was thought that the time had arrived for a separate organization that should concern itself solely with rubber production.

The necessity for such an association is shown in the production figures of the next few years. In 1907 plantation rubber amounted to 1,000 tons; the next year it almost doubled, reaching 1,800 tons; the next year it doubled again, reaching 3,600 tons, while in 1910 there was more than 100 per cent. increase, the production for that year reaching 8,200 tons.

For the first six years of its existence the Rubber Growers' Association was housed with the London Chamber of Commerce, and a few years after the foundation of the association its increasing membership and the importance of the matters with which it had to deal necessitated its incorporaton under the companies act, as the association could no longer carry on its work as an unincorporated body. Accordingly, in 1912, the association was duly registered as a company, limited by guarantee, and a license from the London Board of Trade was obtained to dispense with the use of the word "limited" in its title.

In the following year it was decided that the work of the association should be conducted with its own staff and in its own offices. The association was thus placed in a better position to deal with the increase in the work which has resulted from the rapid development of the rubber growing industry.

The membership of the association is now 638, consisting of 407 companies and 231 individuals. The constituent companies represent a total issued capital of £85,000,000, and own 2,459,015 acres, of which 746,478 acres are planted in rubber.

The extraordinary growth of this association, from an initial membership of 60 to its present membership of over ten times that number, and from an initial representation including less than 25,000 cultivated acres to a present cultivation of thirty times that area, proves at once the need for such an organization and the efficiency with which it has been conducted. Its chairmen have included, in addition to Mr. Rutherford, first chairman, and Mr. John McEwan, who served last year, Mr. A. Bethune, Mr. Richard Magor and Mr. Noel Trotter, all men of sterling character and exceptional ability.

The work of the association covers everything connected with the rubber plantation, reaching from such small details as perfecting scientific instruments for use in the testing laboratory to proper sanitation and matters of freight and export duty, and even following the rubber until it reaches the sales rooms in London. Perhaps the association's most important work in the East is in connection with the administration of the two research funds, which consist of amounts guaranteed by companies operating, respectively, in Ceylon and the Federated Malay States. The guarantors to these funds receive the benefit of the research and advice of resident chemists, mycologists and factory advisers, and have the exclusive right to their regular private and confidential reports. The work done by these funds is of vital importance to the industry.

The last annual meeting of the association was held on February 18 last. The association's report for the year 1914 is a quarto of 56 pages, and shows by its size and by the variety of topics covered the wide area of the association's activities. It is an interesting report, but even more interesting was the address delivered at the meeting by the chairman, Mr. McEwan, which, owing to space limitations, can only be referred to briefly here. He spoke at length about the very strenuous and arduous work of the association and its committees necessitated by the outbreak of the war. He referred to the rubber exhibition held in London last July and spoke very pleasantly of the acquaintance that occasion afforded an opportunity to make with the American rubber men who participated. Mr. McEwan referred quite

humorously to synthetic rubber, in the following paragraph:

"The old bogey of synthetic rubber has been trotted out once more during the year, or rather a new one under the old name. It looked more serious because there was evidently substantial financial backing, but the same melancholy interment closed its career. Its chief service was to furnish a peg for writers and orators on rubber topics to hang jokes on, while the extensive derelict factory built to produce it was commandeered by the war office, with the intention of housing therein several thousand German prisoners. Threats came from Germany that the chemists there would really at last invent synthetic in retaliation for our stopping their supplies of crude rubber. We are still waiting for it, and so are the German and Austrian cities, in which motor cars and taxicabs are rapidly disappearing from the streets."

Another particularly interesting paragraph in his address referred to the extension of uses to which rubber could be put. He said:

"The advent of the war has prevented us gaining the benefits from various efforts made to promote the use of rubber in new directions, and has interfered with some schemes. The government departments cannot suspend work on the war to test untried inventions. There are many such in various stages of development. There is the rubber so treated that it is to make vessels unsinkable. There is the buffer of rubber that when collisions occur at sea is to give only a gentle and friendly tap, unless in the case of an enemy submarine.

"There is the sheathing of rubber for battleships from which the enemy's shot and shell will rebound, and like an Australian boomerang with damaging effect return to its source. There are the rubber-studded blocks for fixing steel rails in their chairs, to replace the wooden keys now in use. Above all, there are the rubber roadways which the council have undertaken with a view to meet the many calls for more silent and more durable streets."

The Annual Report has an additional interest in the patriotic service which it shows the association has performed while at the same time extending the uses of rubber. In the fall it furnished the government with a particularly complete ambulance, supplied with a number of special features, such as rubber buffers and stops, rubber flooring and hot-water bottles, for use in the British expeditionary force. It also supplied the Australian navy with 4,000 rubber life-saving collars, in recognition of the good work done for British commerce by the destruction of the "Emden"; and it further appealed to the members of the association to contribute scrap rubber for hospital flooring. One hundred and sixty-nine companies contributed over 45,000 pounds of rubber, which was made into flooring for a number of London hospitals.

At its annual meeting a new chairman was elected for the coming year—Mr. E. L. Hamilton, who had previously served as vice-chairman of the association. Mr. Hamilton is a director in many large plantation companies in British Malaya and combines a practical knowledge of planting with conspicuous business ability.

The association during the last year, and particularly during the last eight months, has shown great efficiency under most trying conditions, and there is just ground for the optimism regarding its future shown by the chairman in his annual address and by others who followed him on that occasion.

MR. EDWARD L. HAMILTON.

The new chairman of the Rubber Growers' Association, of London, Mr. Edward Lawrence Hamilton, celebrated his 57th birthday on the 4th of March, last. After being educated at the Portora School, he entered business in 1876, at the age of 18. Two years later he went to Calcutta and joined the firm of Hoare, Miller & Co., East India merchants, becoming a partner in that house in 1885, and senior partner in India 10 years later. He retired in 1900, and in the same year became a partner in the firm of Parrott & Co., San Francisco; but in 1903 he returned to England and assumed the management in London of certain large estates in the Malay Peninsula. He is now very widely interested in the rubber industry of the Middle East, being chairman of 14 planting companies, namely, Straits Rubber, Rubana, Selaba, Tali Aver, Glenshiel, Kurau, Bagan Serai, Batak Rabit, Sungei Purun, Cheras, Merchiston, Orient Trust, and Windsor. In addition, he is a director of 6 other companies, as follows: Penang Rubber Estates, Rubber Plantations Investment Trust, Chersonese Malayan Rubber and Produce Company, Djasinga Rubber and Produce, Gula-Kalumpong, and Merchants' Marine Insurance Co.

So it is very evident that as chairman of the London association he is a worthy successor of the distinguished leaders in the planting industry who have hitherto occupied that office.

RUBBER STATISTICS FOR THE UNITED KINGDOM.

CRUDE RUBBER.

	1913.		1914.	
IMPORTS FROM—	Quantity.	Value.	Quantity.	Value.
French West Africa.....*tons*	1,009	$1,386,018	681	$290,681
Peru	1,301	2,168,907	692	905,548
Brazil	11,768	28,910,417	12,385	16,709,522
Gold Coast	667	715,852	252	223,801
Straits Settlements (Inc. Labuan).	15,103	25,773,987	21,143	25,542,964
Federated Malay States	9,880	17,189,319	9,821	12,227,081
Ceylon	6,705	11,238,325	9,361	11,329,329
Other countries	19,391	12,497,313	13,686	9,857,928
Total	65,824	$99,880,138	67,622	$77,086,854
EXPORTS TO—				
Russia .....*tons*	6,354	$10,731,630	7,507	$9,053,452
Germany	9,729	16,267,323	7,073	8,233,558
France	5,308	9,132,016	4,936	6,300,443
United States	17,791	26,362,448	24,179	28,775,123
Other countries	5,830	9,708,916	5,379	6,622,645
Total	45,012	$72,202,333	49,074	$58,985,221

GUTTA PERCHA.

Total Imports .....*tons*	5,562	$6,669,869	2,617	$3,018,325
Total Exports	444	543,773	443	577,328

MANUFACTURES OF INDIA RUBBER.

IMPORTS—				
Apparel, waterproofed	.....	$31,545	.....	$41,151
Boots and shoes.....*doz. pairs*	95,771	583,596	85,348	799,678
Tires and tubes for motor cars	.....	12,445,991	.....	9,210,153
Tires and tubes for motor cycles	.....	490,358	.....	193,312
Tires and tubes for cycles	.....	545,505	.....	386,478
Tires and tubes unenumerated	.....	41,901	.....	58,052
Total	.....	$14,138,895	.....	$10,688,824
EXPORTS—				
Apparel, waterproofed	.....	$4,970,609	.....	$3,765,109
Boots and shoes.....*doz. pairs*	134,314	671,606	131,390	604,035
Tires and tubes for motor cars	.....	3,449,979	.....	2,504,301
Tires and tubes for motor cycles	.....	196,782	.....	323,885
Tires and tubes for cycles	.....	2,002,803	.....	1,617,415
Tires and tubes unenumerated	.....	648,646	.....	524,024
Rubber manufactures, except waterproofed apparel, boots and shoes, tires and tubes	.....	8,060,121	.....	5,732,211
Total	.....	$20,000,546	.....	$15,070,981

WATERPROOFED APPAREL.

EXPORTS TO—				
France	.....	$102,099	.....	$130,539
British South Africa	.....	177,257	.....	70,121
British East Africa	.....	129,585	.....	137,746
Australia	.....	186,577	.....	234,181
New Zealand	.....	271,624	.....	128,437
Canada	.....	1,373,049	.....	904,230
Other countries	.....	2,730,418	.....	2,159,855
Total	.....	$4,970,609	.....	$3,765,109

ELECTRIC WIRES AND CABLES—INSULATED.

IMPORTS—				
Submarine cables	.....	.....	.....	$9,241
Other telegraph and telephone wires and cables	.....	$287,951	.....	238,327
Rubber insulated wire and cables	.....	1,843,610	.....	1,194,594
Total	.....	$2,131,561	.....	$1,442,162
EXPORTS—				
Submarine cables	.....	$9,265,402	.....	$2,384,896
Other telegraph and telephone wires and cables	.....	3,461,683	.....	1,528,402
Rubber insulated wire and cables	.....	2,052,159	.....	1,648,094
Total	.....	$14,779,244	.....	$5,561,392

A Review of Recent Progress in Rubber Chemistry—III.

Contributed.

The author of this paper, a well known rubber chemist, submitted it, not as in any way a descriptive article, but merely as an index of progress during the last two years. To elaborate it and make it a readable article would necessitate the use of many hundreds of pages.

ANALYSIS OF RUBBER AND COMPOUNDS.

THE methods used for rubber analysis in the Bureau of Standards at Washington have recently been published. (THE INDIA RUBBER WORLD, December, 1914, p. 126.) The report of the Joint Committee on Rubber Insulation Analysis has been published in the Journal of Industrial and Engineering Chemistry (vol. 6, p. 514, and THE INDIA RUBBER WORLD, April, 1914, p. 329). The Bureau of Standards has also published a method of determining caoutchouc by direct combustion. (THE INDIA RUBBER WORLD, September, 1914, p. 649.) Felix Jacobson (THE INDIA RUBBER WORLD, December, 1913) has given the standard method of analysis adopted by the General Electric Engineering Association of England. W. Jones (THE INDIA RUBBER WORLD, September, 1913) and H. Loewen (THE INDIA RUBBER WORLD, December, 1913) have written on the errors of the usual acetone determination. Holt (Zeitschrift Analytischer Chimie, vol 27, 1914, p. 115) gives methods for caoutchouc and gutta percha determination. H. Loewen, commenting on Jacobson's method for fillers cited above, says that by using paraffine oil heated to 230 deg., rubber sometimes separates out, but with petroleum of B. P. 170 deg. nothing settles out. (India Rubber Journal, 1914, p. 83.) M. Vellery (Moniteur Scientifique, 1913, vol. 3, p. 82) claims that saponification will determine fats, factice and resins in insulation, if Koetstofer's method is used. Goldberg (Gummi-Zeitung, 1913, vol. 11, p. 85) claims that combustion in a combustion tube is accurate for carbon determinations in insulation. C. Harries has done much work on the identification of the eight-carbon ring, which we have previously referred to. It is also used as a method of analysis. Later he used the identification of the eight-carbon ring to determine the constitution of reclaimed rubber. This same author lately has made dioctyl-propane by analytical methods from the ozonides.

DETERMINATION OF SULPHUR.

E. Deuser (THE INDIA RUBBER WORLD, December, 1913) has a method of determining sulphur by forming the nitrosite, dissolving this in sodium carbonate, evaporating and reducing to sulphides and determining sulphur colorometrically. Herbert Hodgson, of the Northern Polytechnic School, England, has given a long review (India Rubber Journal, 1914, p. 315) of the various methods of determining sulphur and prefers the Kaye and Sharpe method. Kirchof (THE INDIA RUBBER WORLD, June, 1914, p. 400) has studied the addition reactions. Stevens (Journal of the Society of Chemical Industry, 1914, p. 268) gives the sulphur method for rubber. Utz gives his method for sulphur (Gummi-Zeitung, 1914, p. 1634). L. Archbutt (Journal of the Society of Chemical Industry, 1914, p. 34) claims 8 hours' acetone extraction is sufficient.

J. B. Tuttle and C. E. Waters (Journal of Industrial and Engineering Chemistry, vol. 3, p. 734, comprising the matter in Circular reprint No. 174 of Bulletin, vol. 8, No. 3, United States Bureau of Standards) gives results of experiments on the various sulphur methods. Their conclusions are as follows:

1st. Treatment of rubber with nitric acid alone gives low results.

2nd. The Heubener method cannot be employed on the presence of fillers like lead and barium compounds, which give insoluble sulphates.

3rd. The Fusion method gives close results. The van't Kruvs method gives high results.

4th. The best method is to use nitric acid saturated with bromine.

O. Lichtenberg (Gummi-Zeitung, November, 1914, p. 222) gives a contribution on the hydro-halogenides of rubber and their thermal dissociation. W. Schmidt (Journal of the Society of Chemical Industry, 1914, p. 614) gives bromine methods. A. G. Harries (Journal of the Society of Chemical Industry, 1913, p. 372) describes more work on halides. E. Deusen (THE INDIA RUBBER WORLD, December, 1913) gives method of determining rubber by nitrosides.

FILLERS AND THEIR ANALYSIS.

A. Schaeffer (THE INDIA RUBBER WORLD, April, 1914, p. 340) describes sublimed white lead. Gilbert Riggs and Dr. Stone (THE INDIA RUBBER WORLD, May, 1913, p. 414) describe lithopone and zinc oxide. Frank and Marckwald show the injurious action of copper on rubber. (THE INDIA RUBBER WORLD, August, 1914, p. 600.)

The Rubber Growers' Association, in the "Planters' Chronicle," has recently called attention to the ruinous effects of very small quantities of copper on the coagulation of latex. Acetic acid used for coagulation, if distilled in a copper worm, will contain injurious amounts of copper.

Utz (THE INDIA RUBBER WORLD, February, 1914, p. 224) gives a method of analysis of golden sulphite of antimony. W. Schmidt (India Rubber Journal, 1913, p. 83) has also discussed this subject.

Frank and Marckwald (Gummi-Zeitung, p. 1584) have given a method of analysis for sulphur chloride.

F. Fritz states (Journal of the Society of Chemical Industry, 1914, p. 34) that Para rubber seed oil has an iodine value of 141, converts easily into lynoxlin and is suitable for linoleum manufacture.

HALOGEN COMPOUNDS AND NITROSITES AND OZONIDES.

These compounds are frequently made in the analysis of caoutchouc. F. W. Hinrichsen (Report 46, p. 1203) describes hydrohalides made from the acid gases. Mono and Di-compounds were made with ice; without it hexa and tetra compounds (Harries, Journal of the Society of Chemical Industry, 1913, p. 372) were made. Bromination in chloroform solution in ice gives always the tetrabromide. The halogens cannot always be entirely removed by alcoholic potash, in boiling solution. In repeating Weber's experiments only a green substance containing from 6 to 14 per cent. of iodine was obtained.

C. R. Boggs gave a method of determining rubber by means of its tetrabromide, at the Eighth Congress of Chemistry at New York, 1912 (vol. 9, p. 45, Report). G. Heubner (Gummi-Zeitung, vol. 28, p. 1214) has a new bromination method. Vaubel and Weinerth (Gummi-Zeitung, vol. 28, p. 92, 1913) give results of using the bromination method.

W. A. Ducca (Journal of Industrial & Engineering Chemistry, vol. 4, p. 372) has described various methods of determining the caoutchouc in raw and vulcanized rubbers. He reviews Weber, Harries and Alexander, and concludes that the nitrosite method is of no value for determining caoutchouc but is valuable for determining the co-efficient of vulcanization.

He also reviews Budde, Harries, Rampel, Hinrichsen, Kindscher, Axelrod and Heubener on bromination. His own results were always high, as it is impossible to remove excess of bromine by hot water. G. Heubener (India Rubber Journal, 1914, p. 224; Gummi-Zeitung, vol. 28, p. 320; Kolloid Zeitschrift, 1913, p. 53; India Rubber Journal, 1913, p. 22) gives results of work on bromination method and criticizes Ditmar, Caspari and Kirchof.

W. Schmidt (Journal of the Society of Chemical Industry, 1914, p. 614) brominated with potassium bromate and bromide in hydrochloric acid aqueous solution as per Vaubel's method and found five instead of six atoms of bromine absorbed in the caoutchouc molecule. He used penta-chlor-ethane as solvent. K. Utz (Gummi-Zeitung, 1912, pp. 968 and 468, and 1914, vol. 28, p. 631) states that the determination of bromine in caoutchouc-tetrabromide gives wrong results. He used the methods of Baubingy and Chavanne (Journal of the Society of Chemical Industry, 1913, pp. 761 and 1018, and 1914, p. 136) and suggests further work on the Heubener method using this bromine method as previous criticism was based on the fusion method for bromine (Kolloid Zeitschrift, 1913, vol. 12, p. 54).

L. G. Wesson (Journal of Industrial and Engineering Chemistry, 1914, p. 459, and The India Rubber World, September, 1914, p. 649) has published methods of determining rubber having approval of the United States Bureau of Standards. R. Becker (Kolloid Zeitschrift, vol. 12, 1912, p. 54, and Gummi-Zeitung, vol. 26, p. 1503) works with the Heubener and Budde methods and cautions against under-bromination.

RUBBERS OTHER THAN PARA.

The rapidly falling prices of plantation rubber have served to lessen the interest in all other than Para rubber of either the wild Brazilian or the cultivated plantation variety.

Guayule: Owing to the disturbed conditions in Mexico this is not at present an important article of commerce. F. E. Lloyd (Journal of the Society of Chemical Industry, Febbruary, 1914, p. 107) has shown that this is primarily a desert plant and when it is planted in a rainy district or when water is supplied to it by irrigation it grows rapidly, but the rubber content may decrease as much as 62 per cent. The resins do not seem to be affected by the rainfall.

Kickxia Elastica: D. Spence and W. F. Russell (Chemical Abstracts, 1914, p. 4085) show that this is fairly good rubber if properly worked. Frank and Marckwald had previously condemned it (Gummi-Zeitung, vol. 27, p. 2087) and they deny that they had improperly treated it.

Funtumia: Buel (Le Caoutchouc la Gutta Percha, 1913, vol. 10, p. 6884) gives results of tests of this rubber as well as of herb and weak Para. These results do not seem important or conclusive.

Manihot: Fenkender (The India Rubber World, April, 1914) has written on this rubber.

Apocynaceae and Euphorbia: A French patent issued to C. E. Anquétil claims coagulation of these latices with benzol and acetic acid.

Asclepias rubber: The India Rubber World, 1914, p. 645, has discussed this.

Tinias: A rubber fruit. This has been described by A. Dubosc (Chemical Abstracts, 1914, p. 425).

Ceara and Rambong: Beadle and Stevens (Chemical Abstracts, 1913, p. 1622) have described these.

As above remarked, these rubbers are of scarcely any present interest.

NORTHERN RUBBER-BEARING PLANTS.

In recent years a number of northern plants of the milk weed family and other latex-bearing varieties have been investigated by various American chemists. Charles Fox at the Eighth International Congress of Chemistry (see Proceedings, vol. 25, p. 593) described Osage orange latex, which did not seem to produce rubber. The same author (Ohio Naturalist, vol. 11, p. 271) described the rubber obtained from milk weed; and A. C. Meisch, in an address before the Chemists' Club in New York City (Journal of the Society of Chemical Industry, 1913, p. 72) also described this rubber. Charles Fox also described lettuce rubber from the *Dichotoma* (Journal of Industrial & Engineering Chemistry, vol. 5, p. 477).

NEW RUBBER PRODUCTS.

Rubber Foam: This subject seems to have attracted some attention recently. United States patent No. 1,038,950, granted to F. Pflumer, for manufacturing rubber froth, claims vulcanizing partly under high pressure, then releasing so that the gas blows it into froth; then it is further vulcanized. United States patent No. 1,089,482 to F. Seaman claims the manufacture of rubber foam by adding carbon bisulphide and compressed gas, then adding sulphur chloride, the latter evidently to give a cold vulcanization. United States patent No. 1,115,031 has been granted to Gray Staunton, of Muskegon, Michigan, claiming the production of rubber sponge or foam. (The India Rubber World, December, 1914, p. 131, and January, 1915, p. 197; also Scientific American, September, 1914, and January, 1915.) This method depends on mixing the rubber with hydrocarbon solvent and submitting it to a vacuum to puff the rubber up, after which a cold cure is given.

A. Dubosc (Le Caoutchouc la Gutta Percha, vol. 10, p. 7639) has described mossy rubber.

Balloon Fabrics: K. Member and A. Schob (Materialsprufung, 1912, No. 4, p. 202) describe bursting tests on this material, and the "London Times" Engineering Supplement had a review of this subject recently (Journal of the Society of Chemical Industry, vol. 32, p. 282). Dr. Heubener (Chemical Abstracts, 1913, p. 2693) has described the manufacture. The system of testing used in the Goodyear Tire & Rubber Co.'s works has been fully described by R. A. D. Preston (The India Rubber World, November, 1914, p. 69).

PHYSICAL TESTING OF RUBBER.

Probably no industry is so dependent on physical tests in connection with the chemical tests of its product as the rubber industry. The testing of balloon fabrics has been before referred to (The India Rubber World, November, 1914, p. 691). Memler and A. Schob (Materialsprufung, 1912, vol. 4, p. 202) describe bursting tests on balloon fabric at Gross Lichterfeld. The Bureau of Standards has in Circular No. 38 described some tests for rubber. (The India Rubber World, December, 1914, p. 126.)

The Société D'Encouragement pour l'Industrie Nationale, of Paris, has awarded a medal to Chéneveau and Heim (The India Rubber World, November, 1914, p. 108) for a recording dynamometer by which stretch and hysteresis may be determined.

Earl L. Davis, of the Goodyear Tire & Rubber Co.'s laboratories, has recently discussed (Journal of Industrial & Engineering Chemistry, December, 1914, p. 985, and Journal of the Society of Chemical Industry, 1914, p. 992) the mathematical formulas which Chéneveau and Heim developed. (Bulletin de La Société D'Encouragement pour l'Industrie Nationale, Paris, vol. 120, July, 1913, p. 20). Davis used, however, the Schwartz Rubber Testing Machine. His experiments show that the actual measurements of the curves compare very closely with the computations, and he urges that these values be standardized in specifications for various stocks.

Bethune (The India Rubber World, 1914, p. 384) has discussed the standardization of rubber. Spence and Young (Chemical Abstracts, 1913, p. 1107) have devised an apparatus for hot vulcanization by which uniform conditions may be secured for each test sample vulcanized. P. L. Wormeley (The India Rubber World, 1913, p. 412) has discussed tension tests.

FACTICE.

Ditmar (The India Rubber World, June, 1914, p. 481) records numerous experiments and tests on this material, and Vaubel (Gummi-Zeitung, vol. 27, p. 1254) analyzes samples and speculates on its composition.

(To be continued.)

INSULATING PROPERTIES OF SOLID DIELECTRICS.

In the January issue of this publication, on the page devoted to rubber chemistry, there was a partial reproduction of a table showing volume resistivity of solid dielectrics which appeared in a paper, "Insulating Properties of Solid Dielectrics," by Harvey L. Curtis, Associate Physicist of the Bureau of Stand-

ards at Washington, and published as No. 234 of the "Scientific Papers of the Bureau of Standards." Unfortunately, however, in the composition of this table an error was made which, while easily detected by those familiar with the subject, was liable to be misleading to many readers. The table is consequently inserted again in correct form and is as follows:

VOLUME RESISTIVITY OF SOLID DIELECTRICS.

Material.	Resistivity Ohm-centimeters.
Special paraffin ..... over	$5{,}000 \times 10^{15}$
Ceresin ..... over	$5{,}000 \times 10^{15}$
Hard rubber	$1{,}000 \times 10^{15}$
Clear mica	200×10^{15}
Sulphur	100×10^{15}
G. E. No. 55 R	40×10^{15}
Hallowax No. 5,055 B	20×10^{15}
Bakelite No. L 558	20×10^{15}
Shellac	10×10^{15}
Sealing wax	8×10^{15}
Moulded mica	1×10^{15}
Unglazed porcelain	300×10^{12}
German glass	50×10^{12}
Plate glass	20×10^{12}
Opal glass	1×10^{12}
Black condensite	40×10^{9}
White celluloid	20×10^{9}
White galalith	10×10^{9}
Blue Vermont marble	1×10^{9}
Ivory	200×10^{6}
Slate	100×10^{6}

THE OBITUARY RECORD.

THOMAS MILBURN UPP.

THOMAS M. UPP, writer, naturalist, and for the last two years a member of the staff of THE INDIA RUBBER WORLD, passed away March 8, 1915, at Tompkins Corners, New York.

THOMAS M. UPP.

At the time of his death he was alone, his wife being in Seattle, attending the golden wedding of her parents. His house took fire in the early morning hours and burned to the ground with the unfortunate owner in it.

Mr. Upp was born in Iowa some forty years ago and passed his youth in the West, but a number of years ago moved to the East and engaged in newspaper work on the New York dailies. But he was naturalist even more than journalist and could not resist the call from the forest and the hillside. Some nine years ago, therefore, he purchased a farm at Tompkins Corners—not with the intention of farming but simply to live in the midst of nature.

He was a botanist, geologist and astronomer of repute. His book reviews and critical articles were always excellent, while in research work he had few equals. Active, aggressive, scholarly, he was a firm friend, a charming comrade, and one who will long be missed.

Dr. William T. Hornaday, director of the New York Zoological Gardens, an intimate friend, offers the following tribute to his memory:

On an unscarred and natural mountainside in the Berkshire Hills of Putnam County, New York, there lived and died a man who was a poet, philosopher, naturalist and champion of clean politics. The occupant of a modest cottage almost smothered in vegetation, he wielded a pen that sent forth many a broad message of power and influence. When Thomas M. Upp, Justice of the Peace, attacked with his marvelous gift of biting satire an abuse or an abuser, the world laughed and applauded, and the party of the second part turned red and took notice. To be commended by that trenchant pen was indeed an honor.

He was a fellow of infinite jest; of most excellent fancy. His humorous poems were works of art. First of all, he was the friend and defender of nearly all wild life. He demanded that even the pilot blacksnake should have a square deal. The birds, wild flowers and trees were his most intimate friends, and the ruthless destroyers of them he regarded as his enemies.

With an excellent knowledge of astronomy, on which for years he wrote popular articles, the heavens declared to him the glory of God and the firmament showed His handiwork. Born and reared on the prairies of Iowa, when Iowa was the "the frontier," he grew up close to nature. His soul was full of poetic imagery, and his verses were in every sense real poems. The fire which destroyed both his home and his life took from us a large collection of original verses of which no copies remain.

Mr. Upp's greatest single achievement was the stamping out in Putnam County of the vote-selling evil, and it well illustrates the power of one determined citizen who is right and who is inspired by a high motive. Alone, single-handed, without financial resources and with no assistance save the publication of his articles in the Carmel newspapers, Mr. Upp set on foot and carried through to success, in 1913, the movement that ended in Putnam County a long-standing disgrace.

ALBERT GOOSS.

The German rubber industry lost one of its veteran members in the death of Albert Gooss, manager of the United Rubber Goods Manufacturing Co., Harburg-Vienna, which occurred February 22 last. Mr. Gooss was the son of a Hamburg merchant and had been actively connected with the rubber industry for the past 47 years, entering it in 1868 as a clerk in the United Rubber Goods Manufacturing Co. In the course of his career he was connected with the Continental company in Hanover, and founded the Saxon-Bohemian Rubber Goods Manufacturing Co. in Dresden. In 1897 Mr. Gooss became manager of the Hanover-Linden Telegraph Works, and when this company was absorbed by the United Rubber Goods Manufacturing Co., in 1898, he retained his position as manager of the Linden plant.

HAROLD L. WAGNER.

Harold L. Wagner, associated for twelve years with Robinson & Co., crude rubber importers of New York City, died on March 24 at his home, 76 Adelphi street, Brooklyn, in his 27th year. Notwithstanding his comparative youth, he was well known in New York rubber circles, and in addition to his business interests was active in the Masonic organization, being a prominent member of one of the Brooklyn lodges.

John G. Holt, a retired rubber stamp manufacturer, died at his home, 88 Madison street, Brooklyn, New York, March 4, at the age of 58 years.

Henry H. Sessions, inventor of the vestibule and anti-telescoping device used on most railroad passenger trains, and of the air brake and other devices for street cars, died at his home in Chicago, March 21, at the age of 67 years.

News has been received of the death of Jacob Musly, who for the last 13 years was one of the partners of the firm of Weise & Co., rubber dealers of Rotterdam and Amsterdam.

A new O'Sullivan rubber heel has appeared on the market, for shoes with Louis heels. It is made in black and tan and in a complete run of sizes from 1 to 5,—the first time, according to the manufacturers, that anything of this kind has been attempted. [O'Sullivan Rubber Co., 131 Hudson street, New York.]

New Rubber Goods in the Market.

RUBBER COATS.

THE work of the clothing designers is now being shown in the new models on the market for the Spring and Summer. Of the number displayed the most novel is the one from which the accompanying illustration was made. This is an all white coat, made of rubberized silk crêpe de chine. It has loose raglan sleeves, one of the new deep collars which can be buttoned up close to the neck or left open, as desired, and is finished with deep pockets and large white pearl buttons. It is extremely light in weight and is suitable for wear over the most delicate costume, on damp days, at the beaches, etc.

The same manufacturers have also introduced a smart rain or traveling coat of rubberized silk crêpe de chine in putty, gray, navy and black. This coat is also loose, an inverted seam in the center of the back giving additional fullness. It has a detachable belt, patch pockets, set-in sleeves and a coat collar which buttons close to the neck. [N. Y. Mackintosh Co., Mamaroneck, New York.]

In men's coats the military feature of present style tendencies has been brought out, and no matter how much a man may disapprove of warfare generally, or what his personal distaste or unfitness for service, the smartness that the military cape adds to the raincoat is not to be overlooked. The cut shows one of these new effects in waterproof coats.

The third illustration shows a new rubber firecoat. Heretofore firecoats have been made entirely with black rubber both inside and out, with the exception of officers' or chiefs' coats, which have been made with a white coating. This new coat, brought out by a firm specializing in rainproof clothing, is made with a red rubber coating both inside and out and is being sold under the registered trade mark "Red Back." It is not a brilliant red but a deep maroon shade, and the stock has a fine smooth finish. [Stoughton Rubber Co., 232 Summer street, Boston.]

BATHING ACCESSORIES.

"Ocean Millinery" is the aptly descriptive classification under which one manufacturer offers this line of rubber goods for the coming season. A few styles were selected for photographic reproduction from this line, which includes everything in the way of rubber bathing accessories —caps, girdles, collars, rubber handkerchief bags, garters, flowers, fruit, berries, etc.—all hand made, exclusive in design and entirely of rubber. Of the three styles illustrated. The first cut shows the "Tommy Atkins" cap. This is made of red and blue rubber, the blue band and streamers contrasting effectively with the red cap. The second figure shows a military cap with sash to match. The cap illustrated is made of gray rubber, with an orange band, a blue insert in the front, across which are lacings of black, and a gray and orange military pompon. The sash is of the orange rubber, with tassels of orange and gray. Both cap and girdle are made, however, in other combinations of colors. The third cut shows a cap and girdle with rhinestone decorations. This set, which also includes rhinestone studded garters, is in an attractive shade of gray, but the same style is made in various colors and shades. [L. C. Studios, 25 West Forty-fifth street, New York.]

Another concern which manufactures art rubber novelties has several handsome new designs on the market, of which two are shown. The first is a rubberized beach cap of college type. The crown is tied in kerchief effect, with upstanding ends trimmed with black pussy willow silk. It is made in black and white, also in deep red and black and in turquoise blue and black. The other is a rubberized bathing cap. The crown, which is made of sateen, in red, green, navy or King's blue, is trimmed

with two "feelers" fastened under a patent leather rosette. The colored crown is gathered into a black shirring. [Stern Specialty Co., 42 East Twenty-second street, New York.]

The third set of illustrations shows new caps on sale in one of the Fifth avenue department stores. These are all made of rubberized material, the first style having a foundation of silk in navy, sand or black, with a band of contrasting color, finished

in front with a buckle. The Scotch cap in the center is also of rubberized silk, in navy, red or black with plaid trimmings, and the third style, which is made in white, black or navy, is trimmed with rubber flowers.

A bathing accessory that will delight the small child at the same time that it appeals strongly to the small child's mother is shown in the accompanying cut. These garments, called "Seasides," are made of waterproof material and are intended to be slipped over the little one's skirt or trousers to protect them from the water while wading or playing around the beach. They are made in red or black, in sizes from 2 to 8 years, and each garment is supplied in a waterproof bag, the manufacturers producing a line of bags in rubberized silk and other materials for carrying wet bathing suits. [Stern Specialty Co., 42 East Twenty-second street, New York.]

NEW RUBBER TOYS.

Nothing offers greater opportunities to the makers of rubber toys than the reproduction in rubber of the little personages that have become familiar and dear to children through stories of adventure. Probably no modern child's story is more popular than "The Adventures of Peter Rabbit," and every child who has read this story or heard it read will want one of the rubber figures of this funny little fellow, who has been faithfully reproduced in this material, in a figure 5½ inches high, brown in color with a bright blue jacket and with black slippers. The makers are putting out also a "Peter Rabbit Outfit," which consists of this rubber toy and a handsome copy of the Peter Rabbit book, printed in five colors, both packed in a gift box.

Other novelties made by this company are hot-water bottles, in pint, half-pint and quarter-pint sizes, covered with felt on which are printed nursery scenes, animal figures, etc. These hot-water bottles, in addition to serving a purpose as toys, may be put to practical use. [Anderson Novelty Rubber Co., Akron, Ohio.]

A NEW TENNIS SHOE.

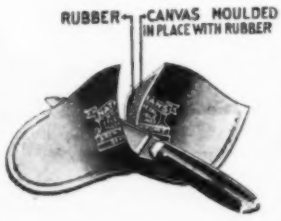
Here is a new tennis or outing shoe, the upper of canvas, with perforated saddle strap, counter and lace stay of black or tan Russia calf, and the sole and heel of rubber. The illustration shows an Oxford in this style, but it is made also in high shoes, some of which, in addition to the trimmings mentioned, have leather tips.

A SHOE MADE OF COTTON AND RUBBER.

A shoe manufacturing concern in the South has recently brought out a shoe made almost entirely of cotton and rubber, the only part consisting of other materials being a thin welt of leather to which the sole is attached. The upper of this new shoe is made of Palm Beach cloth; the sole is of cotton belting, which is declared to possess wearing qualities in this use superior to leather, and the heel is of rubber. [The J. K. Orr Co., Atlanta, Georgia.]

THE NATHAN (NO METAL) ARCH SUPPORT.

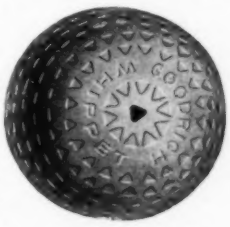
This is a flexible cushion that supports the arch without the use of any metal whatever. One of the cuts below illustrates the support cut through the center to show its construction. The top outside section is made of Russia calf leather, and the lower section of leather especially prepared to grip the sock lining. Inside this leather case are two layers of rubber, the top or thicker section being of rubber and fabric such as is used in tire construction, molded into the desired shape. Under this is another rubber layer, unmixed with fabric. The molded rubber arch is designed to furnish a strong and elastic support, and it is claimed for the device that it gradually restores the muscles to a normal and healthy condition, by exerting a gentle massage movement through the "give" of the bottom rubber layer. [Nathan Novelty Manufacturing Co., 84-90 Reade street, New York.]



A recently invented device for attachment to phonographs and telephone diaphragms for clarifying the tone by retarding vibration is composed of rubber and celluloid discs and soft paper cushions.

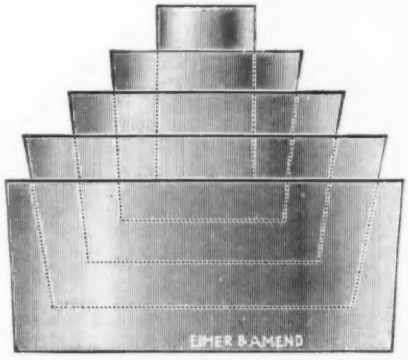
THE WHIPPET GOLF BALL.

The "Whippet" is the newest thing in golf balls, being so constructed, according to the manufacturers, as to combine distance superiority and the inelasticity which the old "gutty" had for putting. It is claimed that the Whippet will outdrive other balls from 10 to 25 yards. This ball is coated with a specially prepared rubber paint, which is said to act like chalk on a billiard ball, preventing it from slipping off the club and giving better control of the stroke. The application of rubber paint to the outside of a golf ball is something entirely new, and its effect, with the feature of inelasticity in putting, make the possibilities of this ball especially interesting to golfers. One expert on golf ball manufacture, in speaking of the Whippet, states that he considers it "the greatest advance in golf ball construction since the introduction of the rubber core." [The B. F. Goodrich Co., Akron, Ohio.]



THE "FITALL" STOPPER.

This is a set of five rubber stoppers or rings, one fitting over the other and all forming one large stopper; or sections may be be removed to to make stoppers of various sizes, as will be suggested by reference to the illustration. With all five sections in use the stopper is 50 millimeters, or about 2 inches, in diameter. Rings can be purchased separately if desired. This makes a very useful set, particularly for fitting up special laboratory apparatus. [Eimer & Amend, 205-11 Third avenue, New York.]



A SANITARY INVALID PAD.

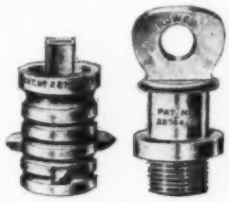
Here is a rubber pad for invalids which, while only half the size of the ordinary air bed, possesses certain advantages—one of which is that, as a space is left on both sides, between it and the edge of the bed, there is less liability to puncture. This pad is 48 inches long, a length sufficient to take in the anatomical curves of the body from shoulders to knees, and it can be inflated to conform to the body with uniform pressure. It is 30 inches wide and from a thickness of 4 inches at the head slopes toward the lower end until it is on a level with the regular mattress. It weighs only 5 pounds, and when deflated can be rolled into a package 6 x 10 inches. It is supplied with a detachable cover that can be removed and washed. Such a pad is said to prevent bed sores and to be invaluable in cases of backache, fracture, shocks, etc. The company makes a similar air mattress in size 19 x 72 inches for ambulances, to relieve jolting and jarring. [Metropolitan Air Goods Co., Reading, Massachusetts.]

A RUBBER DRIP CUP FOR CANOE PADDLES.

The advantages of the double paddle for canoeing have hitherto been somewhat offset by its one great disadvantage—that when the paddle is reversed the water runs down from the blade up the canoeist's arm. By means of the small rubber device shown in the cut herewith, however, this disadvantage has been overcome. This is a drip cup made of rubber, that can be adjusted on the paddle to catch the water as it runs down from the blade. These cups come in pairs, for adjustment one at each end of the paddle where it spreads out into the blade. [Abercrombie & Fitch Co., 53-7 West Thirty-sixth street, New York.]

STOPPER FOR HOT WATER BOTTLES.

In the use of the hot water bottle the ordinary socket is often loosened because of repeated insertion and removal of the stopper, resulting finally in a leak. Rowe's "Anchor" interlocking stopper fitting overcomes this difficulty. The socket of this stopper has annular grooves and is made with a number of projections which hold it down securely in the neck of the bottle. The bottle is built up on the socket, so that when vulcanized it is impossible for the socket to turn. [T. W. Rowe, London, N. E., England.]



SCHRADER'S NEW SPECIALTIES.

The only sure way of knowing whether a tire has the prescribed air pressure is to test it, a process which involves considerable trouble and loss of time in removing and replacing the screw-threaded dust cap. All the unnecessary expenditure of time and patience involved in the screwing and unscrewing of the dust cap, when the tire is removed for repairs or a new one put on, can now be avoided. Schrader's new quick-acting cap is slipped over the valve, and all that is required to fasten it is a simple quarter turn and it is firmly seated. To remove it, all that has to be done is to give it a quarter turn in the opposite direction.

Another new and interesting Schrader innovation is the valve repair tool. This is really a tap, die and milling cutter, ingeniously combined in a convenient pocket tool. Its uses are varied; for instance, in case the thread in the valve cap becomes damaged, it can be accurately re-threaded by this tool. In case the top of the valve seat becomes roughed up, it can be milled off with this tool, making an air tight seat for the dust cap or testing gage. It also re-threads the inner valve and can be used in an emergency to remove the inner part of the valve without injury.

And still another Schrader valve specialty is the deflating cap, which eliminates the loss of time occasioned by trying to hold down the air valve while deflating the tire. The little cap slips easily over the valve stem and holds it down as the air escapes. [A. Schrader's Son, Inc., Brooklyn, New York.]

Replete with information for rubber manufacturers.—Mr. Pearson's "Crude Rubber and Compounding Ingredients."

NEW TRADE PUBLICATIONS.

THE UNITED STATES RUBBER CO.'S LITERATURE.

THE catalogs and price lists of the United States Rubber Co. were issued this year on March 1 instead of as formerly on January 1. The present output of the publication department of the company consists of 45 different pieces, nine of these being extremely handsome catalogs of a uniform size of 4½ x 8½ inches, with highly artistic covers in a variety of colors, while the text is printed on a finely finished paper that secures the best possible results from the many halftone cuts with which the books are illustrated. These nine catalogs cover the nine principal brands sold by the company, namely, American, Banigan, Boston, Candee, "Glove," Lycoming, Meyer and Jersey, Wales-Goodyear and Woonsocket.

To revert to the covers again, 4 of them have exceptionally appropriate designs, the American catalog showing the dome of the Capitol at Washington, the Boston catalog cover reproducing the historic old State House in Boston, the Wales-Goodyear showing the Polar bear—for half a century associated with this brand—strolling very contentedly over a chilly looking iceberg, while the Woonsocket cover depicts an aggressive elephant (appropriate because of the elephant head branded in Woonsocket goods) charging through the underbrush towards a native who is earnestly sprinting for cover.

The halftone cuts bring out all the little details of the different boots and shoes so completely that nothing need be left to the imagination. These catalogs show two features that are new this season, namely, a list of boots, lumbermen's, Arctics, gaiters and shoes made under the "Patent Pressure Process." This process is referred to in the catalogs as follows: "The Patent Pressure Process supplants hand work with an even, accurate pressure of the pure gum and the constituent fabrics, firmly, solidly and permanently uniting all the various parts of the boot or shoe. Patent Process footwear is the most economical that the consumer can buy." Another new feature found in all

THE "SURE LOCK" FOR ARCTICS.

the different brands is the "Sure Lock" buckle, which is now the standard equipment of the light gaiters made by the different factories and which is also recommended for heavy Arctics and lumbermen's. This buckle is described as an "absolutely secure fastening under all conditions, with no projecting ends to catch in the clothing."

In addition to the 9 illustrated catalogs there are 36 smaller lists ranging from 4 to 24 pages, two sets of 9 each being devoted to the gross price list and the net price list of the different brands mentioned above, while the other lists cover various brands made by the company but to which illustrated catalogs are not devoted, as, for instance, the "Commonwealth and Security" brands and the "New Brunswick" brand. And there are, in addition, illustrated lists devoted to the "Empire" brand, the "Unika" (tan) brand, the "Everstick" and to miscellaneous goods.

While at first glance one is impressed most by the artistic quality of these productions, what makes the most lasting impression, on examination, is the completeness of the information which these booklets contain. It would seem as if the most inquisitive dealer could hardly ask a question not fully answered in this library of footwear information. To illustrate—picking up one of the books at random, the Wales-Goodyear catalog has 40 illustrations showing the different shapes of soles and heels mentioned in the text. If after reading one of these catalogs carefully the retailer still labors under any misconception on any essential point it must be charged to his own lack of perspicacity rather than to want of perspicuity on the part of the compiler of these books.

REMEMBERING THE CONSUMER ON HIS BIRTHDAY.

It is pleasant, of course, to be remembered at Christmas time—provided the remembrance is a useful one—but it is doubly pleasant to be remembered on one's birthday, as that carries with it the comforting thought that one's natal day is of sufficient importance to be noticed. The Canadian Consolidated Rubber Co., of Montreal, has utilized this theory in a clever advertising campaign. The company's advertising department, by a unique plan described in the January, 1914, number of THE INDIA RUBBER WORLD, informed itself as to the birthday date of a great many thousand users of tires and other rubber goods and, having catalogued this information, has followed it up by sending out every day some token to those whose birthdays fall on that particular date. Last year it distributed birthday cards and blotters. This year it is distributing birthday calendars.

These calendars consist of a sizable pad, containing not only the days of the month but certain modern proverbs and rubber information, fastened on a metallic back so grained as to appear like a panel of olive wood. On the front page of the calendar is printed, "Wishing you many happy returns of"—and then is inserted the date of the recipient's birth. This sort of advertising makes a subtle appeal to one's self-appreciation and will no doubt prove very effective.

A BOOKLET ON RUBBER BELTING AND TRANSMISSION.

Everyone who uses machinery belting is of course more or less familiar with the advantages claimed for rubber belting over belting made of any other material. However, belt users, notwithstanding their general familiarity with the subject, will be interested in the little booklet just issued by the North British Rubber Co., Limited, of Edinburgh, citing the arguments for rubber belting and the proofs of its superiority. Among other claims which they advance is this:

"The transmission of belt power has to do largely with adhesion, and a non-slipping rubber belt always delivers a full measure of power. For such machines as have a quick reverse action the rubber belt in active test has proved superior to leather. Besides the increased grip on the pulley and consequent conservation of power, belts of rubber have the additional advantage of resisting damp and warm atmospheres better than any other. And there comes the question of quality in materials, both in rubber and cotton. Sixty years' experience has shown that reliable belts can only be made by using the best quality of materials."

There are many useful notes for the user of belts, and some practical talks, with illustrations, on pulley covering, belt lacing, splicing, riveting and general rules regarding belting. A simple testing device that can be made by any millwright is shown, and the result in actual figures clearly proves that the resistance of rubber belting to slip is three times greater than that of leather belting—a point of natural interest to power users. The booklet is an excellent example of the

printer's art. There are many illustrations, one giving a bird's eye view of the mammoth mills of the company, said to be the largest india rubber manufacturers in the British Empire.

A NEW WALPOLE CATALOG.

Early in March distribution was made of a catalog and price list of manufactures of the Walpole Tire & Rubber Co., of Walpole, Massachusetts. Insulating materials—tapes, liquids and compounds—form the important feature of the catalog, the company having specialized in this line since taking up its manufacture in 1892, having as its aim high and permanent dielectric strength in this product rather than initial insulation resistance. An interesting page is devoted to the manufacture of insulating tape. Directions are given for the use and application of certain materials.

This company also manufactures a wide variety of molded rubber goods, claiming for them the same high standard of quality offered in its insulating materials. Soft rubber bushings for cables and motor leads are illustrated, in addition to springs and bumpers for brakes, car seats, etc., coil cushions, gaskets, valves, etc. Corrugated rubber matting is listed, in thicknesses from 1/16 to ½ inch, in rolls of 50 yards or less, and rubber mats in diameters from 7 to 18 inches. A photograph of the plant at Walpole where these various products are turned out occupies the first page of the book.

OLD MAN MILEAGE CALENDAR.

The accompanying cut illustrates a new calendar being distributed by the Republic Rubber Co., of Youngstown, Ohio. This calendar is of the desk variety, a cardboard cut-out supported by a back rest and having a small calendar pad. The figures represent "Old Man Mileage"—less familiarly known as E. Normous Mileage—the quaint character adopted by this company for use in all its advertising, and his dog "Stag," posed beside one of the familiar Staggard tread tires. This group in colors makes an attractive display and is now being used as part of the stage setting in a certain popular vaudeville act.

NEW BEACON FALLS PRICE LIST.

The Beacon Falls Rubber Shoe Co., of Beacon Falls, Connecticut, issued on March 1 its new price list on "Top Notch" rubber footwear. This is a booklet of 40 pages, 4 x 5½ inches in size, and all but five of these 40 pages being illustrated with from one to five cuts. High boots are given first place in the list, followed by the usual lace and buckle varieties and the rubber overs for men, women and children. Three pages at the back of the book are occupied by descriptions and cuts showing sport shoes—basketball, gymnasium, yachting, tango and tennis. Prices are quoted net, and the terms are stated in detail.

The March issue of "R-U-B-B-E-R," the house organ published monthly by the company, describes the "Top Notch" boot as "the lightest, strongest and longest wearing boot on the market," the new process of curing the heavy goods in the line being credited with putting twice the strength and lasting qualities into them and giving them a natural rubber color. The patented ribbed legs and the heavy rough rubber strip next to the sole are special "Top Notch" features, and red soles are conspicuous in the descriptions.

THE EDITOR'S BOOK TABLE.

INDUSTRIAL CHEMISTRY. A MANUAL FOR THE STUDENT AND Manufacturer. Edited by Allen Rogers, Pratt Institute, Brooklyn (in collaboration with 36 scientific writers familiar with as many different departments of chemistry). Second Edition, thoroughly revised and enlarged. D. Van Nostrand & Co., New York. [Large octavo, 1,005 pages, 305 illustrations. Price $5 net.]

As its name implies, this volume covers practically the whole range of chemistry. The feature that will be of special interest to rubber manufacturers and chemists is chapter 34, "Rubber and Allied Gums," by Frederic Dannerth. Dr. Dannerth, it will be remembered, was Honorary Secretary of the Rubber Congress, held in New York, in the fall of 1912, in connection with the Third International Rubber Exposition, and he has contributed more or less regularly for several years to the literature of rubber chemistry.

Twenty-five years ago it would have been impossible to produce a book like this—the work of such a large number of specialists. At that time if a manufacturer wanted information on chemical matters he was very likely to resort to the nearest college and get into conference with the professor of chemistry or his assistants and to lay before them the problem that confronted him. In this way the college professor of chemistry in many instances developed a fairly lucrative practice as an expert in the chemical questions connected with the various industries. But since that time the science of industrial chemistry has enjoyed a great development and become a distinct and recognized profession, until now every important branch of industry can boast of a large number of specialists who devote their whole attention to the chemistry of that particular branch. That makes it possible today for the editor of such a book as "Industrial Chemistry" to bring to his assistance specialists of recognized standing in all the different industries in which chemistry plays any part.

In the 20 pages allotted in this volume to the chemistry of rubber Dr. Dannerth has succeeded in covering a great deal of ground. He starts with the botany of rubber, mentions its geography, describes the extent of its commerce and devotes a number of interesting paragraphs to plantation development. He then takes up as thoroughly as space will permit the chemical characteristics of crude rubber. He also covers briefly the subjects of reclaimed rubber, organic fillers, mineral fillers and solvents. He discusses the process of coagulating, describes and illustrates with a number of halftone cuts the methods of washing, milling, mixing and calendering rubber, explains the process of vulcanization and gives a list of the more important articles manufactured from rubber. He also succeeds, in a few words, in giving a good idea of what has been done in the way of synthetic production of rubber. He adds brief paragraphs on balata, jelutong and chicle. The author has shown great skill in getting so much information in so few pages.

There are other chapters in the book which will interest many rubber manufacturers; for instance, those on "Oils, Fats and Waxes," by Carleton Ellis; "Resins and Oleo-Resins," by Allen Rogers; "Shellac," by A. C. Langmuir; "Gums and Gelatin," by Jerome Alexander, and "Casein," by E. L. Tague.

GERMANY RESTRICTING USE OF AUTOMOBILES TO SAVE TIRES.

By an order issued by the Bundesrat, Berlin, beginning March 15 all automobiles must have new licenses, and licenses will be issued only when it is proven that public necessity for them exists. This order will probably reduce by at least one-half the number of automobiles in use in that country for other than military purposes, the object being to curtail as much as possible the consumption of rubber tires, gasolene and lubricating oils.

ALPHONSE MAJOR, THE MAKER OF CEMENTS.

ONE day, forty years ago, two young men, who had for a long time been inseparable companions, became stranded down in Texas. One of them possessed the secrets of what he claimed to be a valuable recipe. His companion purchased this recipe with one of his few remaining dollars, and the two young men separated to seek their fortunes single-handed.

The new possessor of the secret formula made his way eastward by slow degrees until he reached the city of Balti-

ALPHONSE MAJOR.

more. Here he purchased small quantities of a few ingredients, and as an experiment he made the first batch of his mixture in an old tomato can.

The next day the citizens on the streets of Baltimore stopped to gaze in astonishment at a young man standing beside a tripod, from which was suspended a two-hundred pound weight supported only by two pieces of glass cemented together. This young man was Alphonse Major, and this was the beginning of the Major Manufacturing Co.

Even with this modest but novel method of introducing the new product, it was not long before the qualities of Major's Cement became recognized, and he was soon able to establish a small shop for its manufacture at 232 William street, New York City.

For some time Mr. Major manufactured only cement for china, glass, etc. But one day he received an order for rubber cement, which, of course, he did not have. However, the suggestion caused him to investigate, and he learned that rubber cement was then coming into great demand. Accordingly, he began the manufacture of this product, and it was received with such favor by the trade that he followed it a short time later by the addition of gutta percha cement. Mr. Major began the manufacture of rubber cement in 1878; so he has now been engaged in this branch of his business 37 years. In addition to a large domestic trade he ships considerable quantities of his rubber cement every year to Canada and Europe.

Alphonse Major, a native of Canada, was born in 1848, and despite his sixty-six years, he is still the active head of the concern which bears his name, and which is now located at 461 Pearl street, New York City.

Like the name of many another American product, Major's Cement has become a household word. The little blue porcelain advertising signs are to be seen in almost every town in the country.

Mr. Major is still active as the head of his sales organization and personally calls upon the trade. His rubber cement, which, he points out is made of the finest Pará rubber, has found a wide use in millinery and hat manufactories, as well as in other lines well known to all rubber men. The leather cement, the principal ingredient of which is gutta percha, is widely used in the manufacture of boots and shoes, as well as in other lines.

A BUSY MONTH FOR THE RUBBER CONTROL COMMITTEE.

MEMBERSHIP on the Rubber Control Committee of the Rubber Club of America is no sinecure. The dependence of the continued operation of American mills on the free shipment of rubber from London and the necessity, in order to maintain these shipments, of having the guarantees required by the British Government carried out in good faith, have made the labors of this committee constant and arduous. Six meetings of the committee were held during March and the various questions arising from the present situation were considered and disposed of. The great amount of work involved in getting the necessary rubber supplies for American mills has necessitated a substantial increase in the Rubber Club's office facilities and staff. The secretary's official force now comprises a considerable number of assistants, and in view of the rapidity with which this organization has been brought together, its work is remarkably efficient.

Here is a brief summary of some of the more important matters that were taken up and passed upon by the committee during March:

It was decided that the case marks appearing on rubber guarantees that were filed with the Control Committee must in all cases correspond with the marks on the bills of lading; that in transactions between dealers the marks on the different guarantees should be uniform throughout, and that the only guarantees which would be accepted by the committee would be the official printed forms as prepared by the British Foreign Office.

In view of the extra cost of handling the work of the certification of the guarantees, and the various details connected therewith, it was decided to make the price for certification 6 cents per case instead of 2 cents per case as announced February 13.

An official form has been prepared, for the use of manufacturers, for filing with the British Consul General particulars of shipments to non-European neutral countries.

The Rubber Club, through the Rubber Control Committee, has been in correspondence with the Rubber Exports Committee, of London, in reference to the granting of permits for shipment of rubber to the United States, and other matters affecting the rubber trade of the United States over which the Rubber Exports Committee has jurisdiction.

Arrangements have been made whereby forwarding agents with London connections can take charge of the forwarding, via London, of goods for shipment to neutral European countries, and secure in London the proper licenses for transhipment.

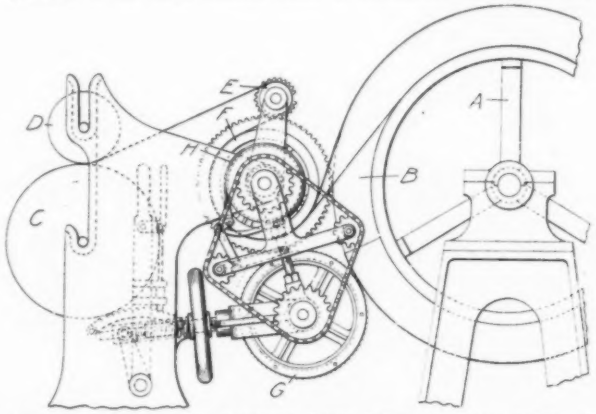
The committee is keeping close watch for possible exports of crude rubber in violation of the guarantees, and is exercising every care to have these guarantees lived up to, in letter as well as in spirit. And it may be added that as far as can be learned, manufacturers and importers are heartily co-operating in this matter.

Sir Richard Crawford, special commissioner attached to the British Embassy at Washington, met with the Rubber Control Committee on March 23, and expressed his appreciation of the efforts of the Rubber Club of America in meeting the situation, and congratulated the club on its efficient work in carrying out the provisions of the guarantees.

New Machines and Appliances.

TIRE FABRIC FEEDING DEVICE.

IN the operation of Gammeter's device, the fabric strip is led from the roller over the tension rollers and applied to the tire core. This is driven by the usual mechanism and serves to propel the measuring wheel through frictional contact. The fabric feeds to the core as fast as the tension roller will allow it, and since the roller is of smaller diameter than the wheel and rotates with it, the fabric is correspondingly stretched over the middle or larger diameter of the core. The resistance to rotation of the main tension roller is furnished in large part by



A—Chuck. *B*—Core. *C*—Frictioned Fabric Roller. *D*—Liner Roller. *E*—Auxiliary Tension Roller. *F*—Main Tension Roller. *G*—Measuring Wheel. *H*—Brake.

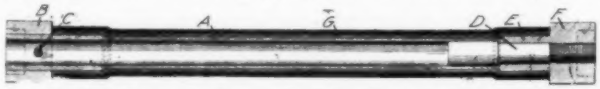
a brake. The pull exerted by the main tension roller will produce a continuous leftward pressure in the frame, causing the brake to contract upon its drum. [United States patent No. 1,124,412.]

AIR BRAKE HOSE MANDREL.

SILL'S invention provides a mandrel upon which the hose is formed and vulcanized with enlarged and square finished ends.

The body of the iron or steel mandrel is hollow and slightly enlarged at one end. A collar is fitted over the enlarged end and is held in position by a pin.

At its opposite end the mandrel has a plug with a projecting stem threaded on the outer end. A sleeve that fits over the stem abuts against the end of the mandrel. The outer end of the sleeve is threaded to engage the threaded portion of the plug. The main body portion of the sleeve corresponds



A—Mandrel Tube. *B*—Collar. *C*—Collar Pin. *D*—Threaded Plug. *E*—Sleeve. *F*—Sleeve End. *G*—Hose.

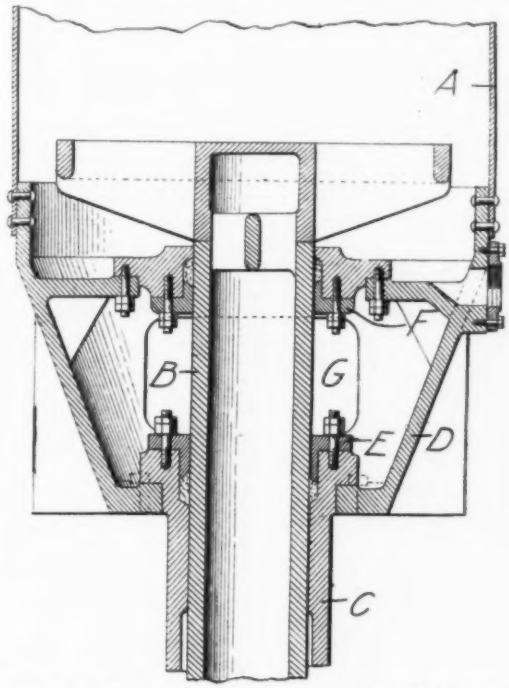
in diameter to the enlarged portion at the opposite end of the mandrel, and these parts form the enlarged ends of the hose section.

The sleeve at its outer end is of the same diameter as the collar at the opposite end of the mandrel. These parts form square shoulders against which the end faces of the hose section are formed. The sides of the collars are flattened to fit the wrench or tool used for unscrewing the sleeve and collar and for replacing them in position. [United States patent No. 1,130,030.]

VULCANIZER PRESS

THE Adamson press has two bearings or stuffing boxes for the ram and outside openings through which adjustments are made.

The vulcanizer base is an outwardly flaring casing terminating in a flange to which the vulcanizer shell is riveted. The lower contracted end is formed into a horizontal flange bored to receive the ram cylinder. The upper end of the cylinder is flanged and supports the lower packing gland. Formed integral with the vulcanizer base is a horizontal partition to which is bolted a ring bored to fit the ram. To the under side



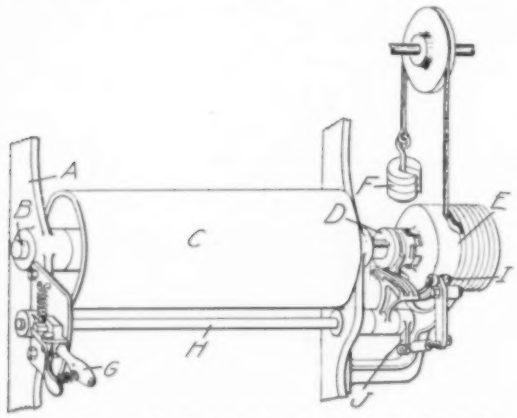
A—Vulcanizer Shell. *B*—Ram. *C*—Ram Cylinder. *D*—Vulcanizer Base. *E*—Lower Gland. *F*—Upper Gland. *G*—Hand Holes.

of this ring is bolted the upper packing gland. The flaring wall of the base is provided on opposite sides with openings through which access may be had to the nuts of the bolts fastening the packing glands as well as those of the ring. [United States patent No. 1,128,831.]

NALL'S TENSIONING DEVICE.

THIS device is applied to the type of tire building machines that carries the rolls of frictioned fabric on a revolving frame and delivers the fabric strip to a revolving core. The fabric and liner roller and two guide rollers are not shown. The fabric strip is carried from the stock roller around a guide roller and then around the rubber covered tension roller. It is then passed around another guide roller and the end applied to the tire core, which is revolved by the usual means. Previous to this, however, the operator shifts the clutch lever to its upper position, which moves the segment lever and throws in the jaw clutch. The core is then revolved and the fabric passes around and revolves the tension roller.

This turns the grooved drum and the cord is wound around it, raising the counterweight, which places a tension on the fabric that is even and continuous throughout the operation. As soon as a strip of fabric has been wound on the core, the

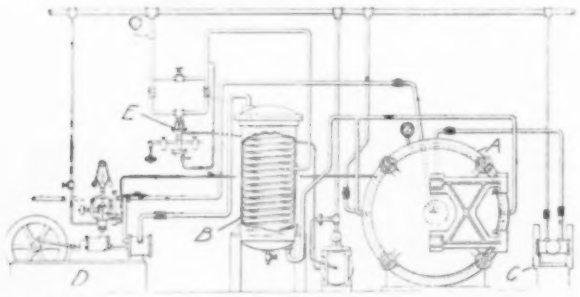


A—Revolving Frame. *B*—Tension Roller Shaft. *C*—Tension Roller. *D*—Jaw Clutch. *E*—Grooved Drum. *F*—Counter Weight. *G*—Clutch Lever. *H*—Clutch Operating Shaft. *I*—Brake. *J*—Brake Arm.

operator moves the lever downward, thereby throwing out the clutch and applying the brake to the drum. [United States patent No. 1,127,494.]

VULCANIZING APPARATUS.

THE Warner apparatus for vulcanizing footwear is operated as follows: The vulcanizer is heated preparatory to the introduction of the footwear. The goods are placed in the heater and the door is closed. The air is exhausted by the vacuum pump and the low pressure and the heat remove air and other gases from the rubber. This serves to compress the footwear on the lasts. The vacuum pump is then stopped, the vacuum broken and communication established with the preheater, which causes the pressure pump to become active by release of pressure in the temperature regulator. The action of the pump



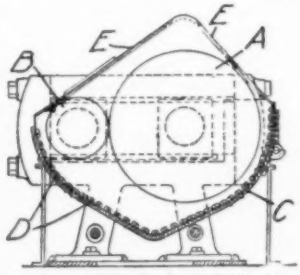
A—Vulcanizer. *B*—Preheater. *C*—Vacuum Pump. *D*—Pressure Pump. *E*—Temperature Regulator.

continues until the predetermined pressure is reached in the vulcanizer, after which the pump acts either slowly or rapidly or intermittently, as conditions demand, for maintaining a constant pressure throughout the run. At the time the vulcanizer is placed in connection with the preheater the steam employed as the heating agent for the vulcanizing medium is exerting its influence on the same within the coil of the preheater. The pressure pump fills the chamber and gradually raises the temperature to the limit set upon the capacity of the preheater by the adjustment of the regulator scale beam. When the temperature reaches this limit it is maintained until the completion of the process. [United States patent No. 1,125,609.]

SOLVENT RECOVERY APPARATUS.

THE illustration shows Boecler's solvent recovery apparatus applied to a slabbing machine used for making "I T" packing.

The two horizontal rolls are enclosed in a casing and practically divide it in two compartments. The inclined sides of the lower compartment are provided with pipes through which cold water circulates. There is also an opening for discharging the condensed solvent. Hand holes on the front and back communicate with the interior of the casing. [British patent No. 22,638.]

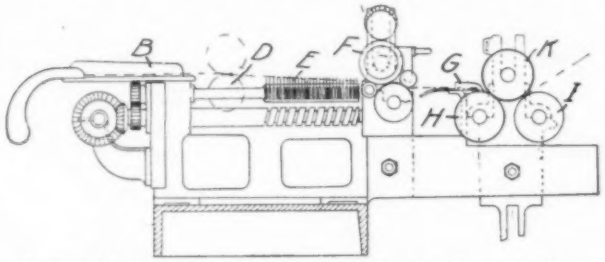


A—Large Roll. *B*—Small Roll. *C*—Casing. *D*—Water Pipes. *E*—Hand Holes.

IMPREGNATING AND SHEETING FIBERS.

COTTON or other fibers are impregnated with rubber and formed in a sheet by Dew's machine.

Thick layers of fiber are fed from a trough, between the feed



B—Feed Trough. *D*—Feed Rollers. *E*—Comb Device. *F*—Presser Rollers. *G*—Fiber Guide. *H* and *I*—Solution Rollers. *K*—Presser Roller.

rollers and over a comb device by which the fibers are laid parallel to one another. They are then passed between presser rollers, through a guide and between the solution rollers. These rollers dip in a solution of rubber and the presser roller removes the surplus. (British patent No. 11,731.)

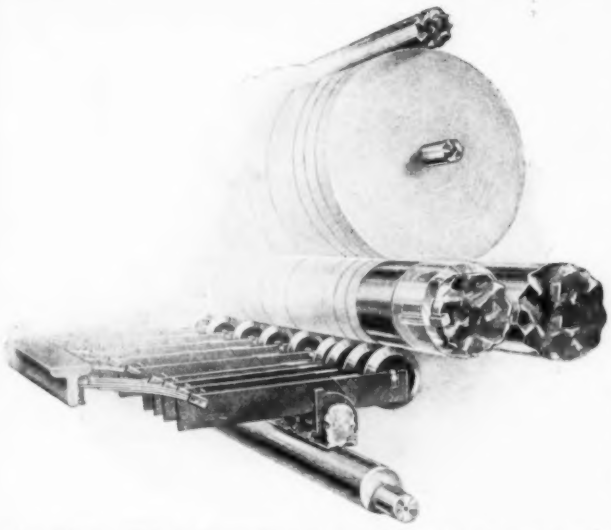
NEW STYLE SLITTING AND COILING MACHINE.

CAMERON'S latest machine is designed to handle all sorts of problems in slitting and coiling various kinds of materials, such as sheet rubber, rubber-coated fabrics, paper and other materials used in the form of a narrow strip.

It is equipped to measure the yardage accurately, as a check on waste or loss, and will cut the material in the width of strip required in any size of coil. It produces firm rolls with even edges and of uniform tension, without requiring the goods to be actually stretched.

The Cameron principle consists in the use of a "cleaving" or "scoring wheel," which presses through the material rather than cuts through it. This scoring wheel is a circular disc having a V-shaped edge, blunt and mounted on a ball-bearing center, and pressed with a spring pressure against a steel cylinder of intense hardness having a highly polished smooth surface. The severed strips have a perfectly clean edge and will not only remain free from raveling on the edge but in the unwinding of the coils there is no tendency for the threads to become untangled and unravel at the edges. This fact is of prime importance in cable winding strip of all kinds and in insulating strip sold to the trade.

The rewinding apparatus which rolls up the goods following the slitting is known as the "Surface Rewind." It consists of two supporting rolls, of which the cutter roll is one and the riding roll, which presses upon the upper surface of the coils and holds them in uniform contact with the supporting rolls, is

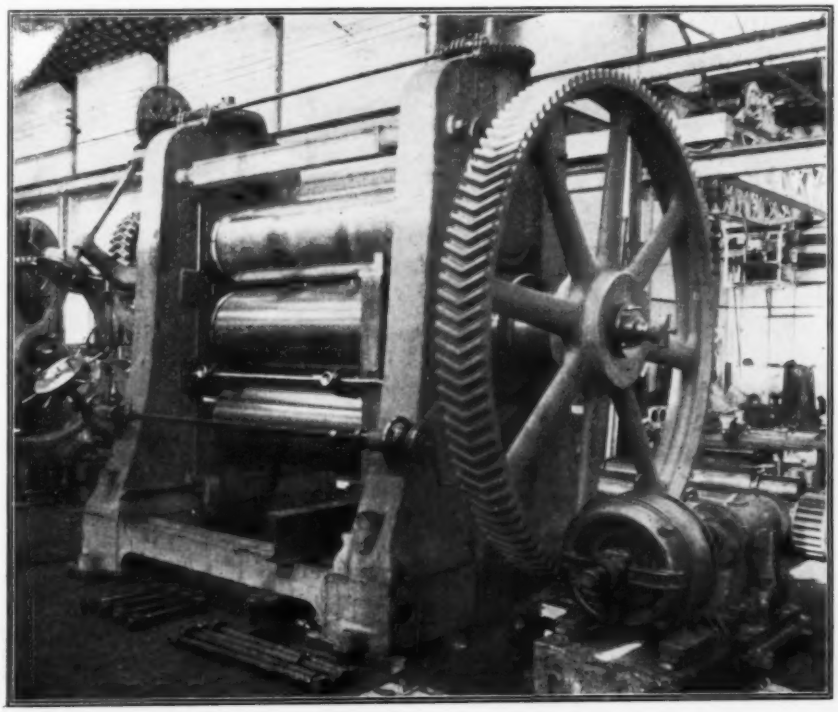


the other. This roll revolves at a higher rate of speed and insures the close winding up of the rolls, thereby producing firm, compact coils without stretching the web. [Cameron Machine Co., Brooklyn, New York.]

LARGE CALENDERS BEING MADE IN ENGLAND.

THE February number of this journal described and illustrated a large three-roll calender being made in an American foundry. David Bridge & Co., Limited, of Manchester, England, are also making some calenders of unusual size. The accompanying cut shows a photograph of a three-roll calender now being constructed in their works. This machine has rolls 28 inches in diameter by 84 inches wide, and two sets of gearing for the following speeds: All three rolls even; top roll friction, two bottom rolls even; bottom roll friction, two top rolls even; and friction both top and bottom.

The changing over from one speed to another is done by double claw clutches, and this can be effected in a few minutes. An improved adjustment enables one or both sides of the top and bottom rolls to be adjusted simultaneously or independently. The motor shown in the photograph was arranged for temporary purposes and does not represent the motor by which the calender will be driven.



Large 3-Roll Calender Being Constructed By David Bridge & Co.

OTHER DEVICES.

Latex Coagulating Machine.—The latex is fed from a tank to an endless belt. This is guided by a series of rollers and passes from the bottom to the top of a chamber through which smoke is drawn by a fan. It then passes in a similar manner through a steam-heated drying room in which hot air is circulated. Stripping rollers remove the surplus latex from the belt. After passing through the drying room the coagulated and dried rubber is removed from the belt. [British patent No. 16,372.]

Jar Ring Lathe.—The novel features of this device are the three mandrels. A cutter bar in which are fastened three knives is supported over the mandrels, by a back shaft pivoted in the end frames. This bar is raised and lowered by cam levers which bring the knives in contact with the rubber-covered revolving mandrels. The thickness of the jar rings is regulated by the feed of a head screw that controls the longitudinal movement of the cutter bar. [German patent G. M. No. 619,093.]

Tubular Fabric Loom.—Chernak's invention relates to the type of loom having a series of shuttles propelled in a circular path and slides reciprocated by cam grooves. The number of warp threads can be materially increased without increasing the diameter of the machine, and the shed forming portions of the warp are given the proper tension. Fastened to the base of the machine is a hollow spindle through which a cable or other core to be covered is fed. In the manufacture of tubular fabric without a core the upper end of the spindle supports a mandrel about which the fabric is woven.

The cam ring is mounted on the hollow spindle and is driven by bevel gears. On the outer surface of the ring are cam grooves which reciprocate the shuttle-propelling slides. These reciprocate vertically the harness slides that carry the warp threads. The slides are thin elongated plates, having longitudinal openings in which wire heddles with warp thread eyes are located. The lower ends of the heddles are secured to fixed pins and their upper ends to vertically adjustable pins carried by slides which are also adjustable by screw threaded stems and nuts to maintain tension on the heddles. The harness slides are reciprocated and moved simultaneously in opposite directions by the cam grooves, and the warp threads are caused to form sheds through which the shuttles pass. Each harness slide may be provided with any desired number of heddles, and this permits the use of a much larger number of warp threads in proportion to the diameter of the machine frame than would be possible if the warp threads were carried by the shuttle operating slides. [United States patent No. 1,129,642.]

The Annual Report of the United States Rubber Co.

THE annual report of President Samuel P. Colt, of the United States Rubber Co., was mailed to the stockholders of that company on March 6. It is impossible to make a satisfactory comparison of the conditions indicated in this report with those of a year ago, as that report covered only nine months, from April 1 to December 31, 1913, whereas this covers the entire calendar year of 1914. The report, however, contains a number of interesting features. For instance, the stockholders of the company, who in March, 1905, numbered 3,369, increased over 100 per cent. during the next five years, reaching a total in 1910 of nearly 7,000; and that number has also increased over 100 per cent. during the last five years, the present number of stockholders being 14,617.

Another interesting paragraph refers to the increase in the value of plants during the year, which amounts to nearly $5,000,000, over $2,000,000 of this having been added to the company's plantation properties in Sumatra.

Two new departures occurred during the year, namely, the formation of an export company, to bring under one control all the export activities of the various subsidiary companies, and the further organization of the Development Department, which is evidently an efficiency movement on a large scale, promoted to see that every part of the company's great organization is kept constantly at its best.

The major part of President Colt's report is given below:

To the Stockholders of the United States Rubber Co.:

This report to the stockholders for the year 1914 covers the first full year since the fiscal year of the company was changed to correspond with the calendar year.

The treasurer's report, appended hereto, gives the consolidated general balance sheet of the United States Rubber Co. and all its subsidiary companies as of December 31, 1914, and the consolidated income statement of the United States Rubber Co. and all its subsidiary companies for the year ending December 31, 1914.

Last year for the first time the consolidated statement included all of the subsidiaries of the company. This year the assets and liabilities of the branch stores of the company are so treated in the consolidated statement, although in many cases the branches are incorporated. This, taken in connection with the profit-sharing stock disposed of, accounts for the decrease of about $3,000,000 in the item of securities owned by the company.

The number of stockholders of the company shows the following increases:

In March, 1905, the total number was 3,369
In March, 1910, the total number was 6,738
In March, 1915, the total number was 14,617

FINANCIAL POSITION OF THE COMPANY.

The company's policy has been to keep strong in cash, the item of about $10,000,000 cash on hand representing over 50 per cent. of the company's current liabilities outside of such as would of necessity exist in the transaction of its business.

PLANTS AND PROPERTIES.

The increase over last year of about $4,850,000 in plants and properties includes an expenditure during the year of about $2,100,000 on the company's rubber plantations in Sumatra, about $870,000 on enlargements of Morgan & Wright tire plant at Detroit, about $355,000 additions to tire and other mechanical plants, about $360,000 additions to footwear plants, about $170,000 additions to reclaiming plants, about $100,000 purchase of real estate for general laboratories, Fifty-eighth street and Eleventh avenue, New York, about $208,000 additions to Canadian property, and about $650,000 resulting from consolidation of branch stores.

VOLUME OF BUSINESS.

The net sales of the company for the year were $83,678,812.05, which is a reduction of about $10,000,000 from the sales of the previous twelve months. This has been occasioned by the prevailing lower selling prices of manufactured goods—the volume of merchandise sold having been somewhat greater than in the previous twelve months. The depression of business undoubtedly has curtailed the sales of tires and mechanical goods.

PROFITS.

The net profits, before deducting interest charges, amounted to $9,776,873.29; after deducting interest charges, the profits were $7,868,223.54. Dividends to the minority stockholders in certain of our subsidiaries amounted to $200,884.75. Dividends for the year upon the preferred stock and common stock of the company amounted to $6,945,388, leaving a surplus of profits of $721,950.79, which is equivalent to about 2 per cent. upon the common stock additional to the 6 per cent. paid.

DEPRECIATION.

While the company has followed its usual custom of making no one specific charge for depreciation, the fixed properties of the company have been maintained in the highest state of efficiency, the cost thereof being charged to expense account. Inventories of manufactured goods and materials have been brought down to correspond with the lower prices prevailing. An estimate of the amount involved in such reductions is not less than $1,500,000.

UNITED STATES RUBBER EXPORT CO., LIMITED.

In the latter part of 1913, an investigation was made of the export business of our various subsidiary companies, and of export conditions and possibilities in general, for the purpose of more systematically and efficiently pushing this department of the business. After studying the matter in this country, two representatives visited many of the principal countries abroad, and as a result of reports of this investigation, the United States Rubber Export Co., Limited, was organized and commenced business on December 15, 1914. * * *

THE DEVELOPMENT DEPARTMENT.

During the past year important progress has been made through the development department in collecting, disseminating and applying the vast store of rubber knowledge and experience possessed by the United States Rubber Co. New processes and products of value have been developed and many of the mills have been equipped with the most up-to-date machinery for the use of patented methods and apparatus. Earnest co-operation and initiative on the part of the operating forces have hastened this constructive work, some of which has required years to perfect. As competitive conditions increase, maximum thoroughness becomes a greater need. Much of the effort of the development department has been directed toward increasing the flexibility and resourcefulness of our organization, a matter of vital importance during such critical and changing periods as those now confronting us.

EFFECT OF WAR UPON OUR BUSINESS.

During the early stages of the war, its effect on the footwear business was not what might have been expected, rubber footwear not having been any part of the army or navy equipment for most of the nations at war. In December, however, this situation changed, and the necessity became so apparent that rush orders were sent over here and rubber boots, warm-lined rubbers and wool boots to the extent of one and one-half million dollars in value were shipped to England and to France.

Our sales in mechanical and miscellaneous goods usually reflect general industrial and railroad conditions, and consequently during the first part of this year this department showed a decrease in volume of sales as compared with the same period of the previous year. This condition having become intensified by

the European war, our volume of sales in mechanical and miscellaneous lines was still more adversely affected in the last five months of the year.

The tire business, being still in a period of abnormal growth, is less affected by current business conditions, but undoubtedly the advent of a war depression curtailed tire consumption, so that the last five months of the year did not compare as favorably as the first seven months with the corresponding period of 1913. Our tire business for the year, however, shows an increase in number of tires sold, although the value was less than for the previous year on account of reduction in selling prices * * *.

OUR RUBBER PLANTATIONS IN SUMATRA.

Despite the unsettled conditions that have existed throughout the world since August 1, 1914, the affairs of our plantation companies have progressed in an entirely satisfactory way. Due to the efficiency of the Dutch planting organizations and the able co-operation of the Eastern staff of the General Rubber Co., the programme for the year has been substantially carried out without interruption.

The company at the present time has properties in Sumatra aggregating 90,072 acres, of which 42,725 acres are planted, which constitutes the largest group of rubber estates in the world. During the past year the first shipments of rubber from the company's plantations were received, and from this time on the production of the estates should rapidly increase.

THE OUTLOOK.

While at the moment there is nothing discouraging in relation to our business, your president feels that the year 1915 is one of uncertainty; and it may be considered good fortune if we are able to maintain or to increase our volume of sales and profits as compared with last year. When the uncertainties caused by the war shall have ceased, when we shall receive a substantial part of our crude rubber from our Sumatra plantations, and when we shall have realized our anticipations from our development and operating departments, we fully expect to enjoy prosperity greater than we have heretofore known.

TREASURER'S REPORT.

UNITED STATES RUBBER CO. AND SUBSIDIARY COMPANIES.

ASSETS.

Property, plants and investments, including rubber plantations		$123,726,273.66
Inventories, manufactured goods and materials	$33,606,740.57	
Cash	10,276,726.14	
Notes and loans receivable	2,032,750.86	
Accounts receivable	19,107,217.43	
Securities, including stock of United States Rubber Co. held by subsidiary companies	3,546,203.58	
Sinking fund cash in hands in trustees	446,708.30	
Miscellaneous	2,183,799.12	
		71,200,146.00
Total assets		$194,926,419.66

LIABILITIES.

Capital stock, first preferred	$59,414,600.00	
Capital stock, second preferred	558,400.00	
Capital stock, common	36,000,000.00	
		$95,973,000.00
Capital stock, rubber goods Manufacturing Co. Preferred issued	$10,351,400.00	
Owned by United States Rubber Co. deposited with trustees	8,826,500.00	
		1,524,900.00
Common issued	$16,941,700.00	
Owned by United States Rubber Co. deposited with trustees	16,881,700.00	
		60,000.00
Subsidiary of Rubber Goods Manufacturing Co.		37,500.00
Minority Canadian Consolidated Rubber Co., Limited, stock, preferred $282,380., common $206,835		489,215.00
Ten-year 6 per cent. Collateral Trust Sinking Fund gold bonds, United States Rubber Co.		17,000,000 00
Ten-year 4½ per cent. debentures, General Rubber Co.	$9,000,000.00	
Ten-year 5 per cent. debentures, Eureka Fire Hose Manufacturing Co.	970,000.00	
Forty-year 6 per cent. Collateral Trust gold bonds, Canadian Consolidated Rubber Co., Limited	$2,600,000.00	
Less owned by subsidiary company	203,000.00	
	2,397,000.00	
Mechanical Rubber Co and New York Belting & Packing Co., bonds	852,500.00	13,219,500.00
Notes and loans payable		17,910,103.83
Acceptances for importation of crude rubber	$823,006.73	
Merchandise accounts payable	2,772,608.36	
Accrued interest, taxes, etc.	357,220.56	
		3,952,835.65
Reserve for dividends		1,736,668.00
Insurance fund reserve	713,328.78	
Employers' accident fund	223,814.87	
		937,143.65
Reserve for depreciation		7,000,000.00
Fixed surpluses (subsidiary companies)		15,080,230.78
*Surplus		20,005,322.75
Total liabilities		$194,926,419.66

*Of this surplus $311,667.35 pertains to minority stock interests.

CONSOLIDATED INCOME STATEMENT FOR THE YEAR ENDING DECEMBER 31, 1914.

Net sales, footwear, tires, mechanical and miscellaneous		$83,678,812.05
Deduct: Cost of manufacture, selling, general expenses and taxes		71,590,343.31
Operating profits		$12,088,468.74
Less: Cash discount allowed customers for prepayment (net)	$1,646,689.80	
Deductions for bad debts	271,220.11	
Federal income tax 1914	170,371.12	
Income charges (net)	223,314.42	
		2,311,595.45
Net income prior to interest charges		$9,776,873.29
Interest on funded and floating debt		1,908,649.75
Net profits		$7,868,223.54
Dividends—United States Rubber Co.	$6,945,388.00	
Dividends to minority stockholders Rubber Goods Manufacturing Co. and subsidiary company and Canadian Consolidated Rubber Co., Limited, and subsidiary company	200,884.75	
		7,146,272.75
Surplus for period		$721,950.79
Surplus, beginning of period	$19,129,504.07	
Additions to surplus—capital gain in conversion of second preferred into first preferred stock	16,100.00	
Adjustments applicable to prior year (net)	137,767.89	
		19,283,371.96
Surplus, December 31, 1914		$20,005,322.75

Respectfully submitted, W. G. PARSONS, Treasurer.

ANNUAL ELECTION.

BOARD OF DIRECTORS FOR 1915.

The following Board of Directors was elected at the annual meeting of the United States Rubber Co., March 16, all having served before with the exception of Mr. Middleton S. Burrill, who takes the place of Mr. D. Lorne McGibbon:

1. Walter S. Ballou, Providence, R. I.
2. James C. Brady, New York City.
3. Nicholas F. Brady, New York City.
4. Middleton S. Burrill, New York City.
5. Samuel P. Colt, Providence, R. I.
6. Harry E. Converse, Boston, Mass.
7. James Deshler, New Brunswick, N. J.
8. James B. Ford, New York City.
9. Francis L. Hine, New York City.
10. Henry L. Hotchkiss, New Haven, Conn.
11. Arthur L. Kelley, Providence, R. I.
12. Lester Leland, Boston, Mass.
13. Samuel M. Nicholson, Providence, R. I.
14. Raymond B. Price, New York City.
15. Homer E. Sawyer, New York City.
16. William H. Truesdale, Greenwich, Conn.
17. Theodore N. Vail, Boston, Mass.
18. John D. Vermeule, New York City.
19. Elisha S. Williams, New York City.

OFFICERS.

At a meeting of the Board of Directors of the United States Rubber Co., held March 18 at the office of the company, 1790 Broadway, New York, all the officers were re-elected for the ensuing year. They are as follows:

Samuel P. Colt, president.
James B. Ford, vice-president.
Lester Leland, vice-president.
Raymond B. Price, vice-president (Development Department).
Homer E. Sawyer, vice-president (Footwear Department).
Elisha S. Williams, vice-president (Tire and Mechanical Department).
Samuel Norris, secretary.
W. G. Parsons, treasurer.
E. J. Hathorne, assistant treasurer.
John D. Carberry, assistant secretary.

EXECUTIVE COMMITTEE.

Walter S. Ballou, Nicholas F. Brady, Samuel P. Colt, James B. Ford and Lester Leland.

THE B. F. GOODRICH CO.'S ANNUAL REPORT.

AT the meeting of the stockholders of The B. F. Goodrich Co., held in New York, March 10, the president submitted his report for the year ending December 31, 1914, from which the following paragraphs are taken:

"After making liberal provision for all maintenance charges, depreciation, bad debts, and all outstanding liabilities, etc., the net income for the period, as shown by the profit and loss account appended, was $5,440,427.00 compared with $2,599,747.39 in 1913.

"Your directors have voted, subject to the approval of the shareholders, to retire 20,000 shares of the preferred stock. This is in accordance with the provision of your company's charter, which provides for the retirement of a minimum of 9,000 shares of the preferred stock each year, beginning with July, 1914. At the annual meeting the shareholders will be asked to approve the retirement of this stock."

The treasurer's report, as contained in the consolidated balance sheet and profit and loss and surplus accounts, given in full below, shows the financial condition of the company:

CONSOLIDATED BALANCE SHEET.

ASSETS.

Capital assets—		
Real estate, buildings, plant, machinery and sundry equipment less reserve for depreciation of $1,503,802.62	$12,391,515.97	
Patents	582,901.73	
Good-will	57,798,000.00	
		$70,772,417.70
Investments in other companies, etc.		1,207,058.00
Société Française B. F. Goodrich—representing the net investment at December 31, 1914		1,216,255.95
12,442 Shares of 7 per cent. cumulative preferred stock in treasury, at par		1,244,200.00
Current assets—		
Inventory of raw materials, partly manufactured and finished stock	$11,308,857.30	
Trade accounts receivable, after deducting reserve to cover doubtful accounts, discounts and allowances	3,101,620.92	
Other accounts receivable	1,445,612.56	
Bills receivable	262,945.10	
Cash in banks and on hand	4,192,521.25	
		20,311,557.13
Deferred charges to future operations—		
Prepaid insurance, interest, taxes, etc.		185,464.87
		$94,936,953.65

DECEMBER 31, 1914—LIABILITIES.

Capital stock—		
600,000 Shares of common stock of the par value of $100 each	$60,000,000.00	
300,000 Shares of 7 per cent. cumulative preferred stock of the par value of $100 each	$30,000,000.00	
Deduct: 9,000 Shares of preferred stock in treasury awaiting cancellation	900,000.00	
	29,100,000.00	
		$89,100,000.00
(The preferred stock is redeemable in case of dissolution, liquidation, merger or consolidation at $125 per share.)		
Current liabilities—		
Accounts payable	$915,717.99	
Sundry accrued liabilities	543,326.03	
		1,459,044.02
Reserves for contingencies		300,000.00
Appropriation from surplus for redemption of preferred stock as above		900,000.00
Surplus (per annexed account)		3,177,909.63
		$94,936,953.65

SURPLUS ACCOUNT,

DECEMBER 31, 1914.

Balance, January 1, 1914		$705,982.63
Net profit for the year ending December 31, 1914, per annexed account		5,440,427.00
		$6,146,409.63
Deduct:		
9,000 Shares of 7 per cent. cumulative preferred stock at par redeemed as of July 1, 1914, as provided by the articles of incorporation and held in treasury for cancellation	$900,000.00	
Seven per cent. dividend on preferred stock for the year ending December 31, 1914	2,068,500.00	
		2,968,500.00
Per balance sheet		$3,177,909.63

PROFIT AND LOSS ACCOUNT

FOR THE YEAR ENDING DECEMBER 31, 1914.

Net sales		$41,764,008.66
Deduct—Manufacturing, selling and general administration expenses		36,189,641.67
Profit from Operations		$5,574,366.99
Add—Miscellaneous income		562,930.10
		$6,137,297.09
Deduct:		
Provision for depreciation	$573,616.11	
Interest on bills payable, etc.	123,253.98	
		696,870.09
Net profit carried to surplus account		$5,440,427.00

THE B. F. GOODRICH CO. ELECTS OFFICERS.

At the regular annual meeting of The B. F. Goodrich Co., held in New York, March 10, a resolution reducing the number of directors from 16 to 14 was approved. O. C. Barber and Phillip Lehman retired from the board, and four other directors—Henry Goldman, A. H. Marks, A. H. Wiggin and B. G. Work—whose terms had expired, were re-elected for three years.

A special meeting of stockholders was held on the same day, at which resolutions were adopted for a reduction of preferred stock from $30,000,000 to $28,000,000.

The directors elected the following officers for a period of one year: President, B. G. Work; vice-president and general manager, A. H. Marks; second vice-president and sales manager, H. E. Raymond; second vice-president and works manager, E. C. Shaw; secretary and assistant treasurer, C. B. Raymond; treasurer, W. A. Means; assistant secretary and assistant treasurer, Guy E. Norwood; assistant sales manager, W. O. Rutherford; auditor, William Murray.

THE WAR'S INFLUENCE ON AUTOMOBILE EXPORTS.

Government statistics show that in 1914 3,430 trucks, valued at $8,985,756, and 22,335 pleasure vehicles, valued at $19,521,708, were exported, against 1,000 trucks, valued at $1,686,807, and 25,880 pleasure cars, valued at $25,343,644, in 1913. The influence of the war will be noticed in the increased proportion of trucks and decreased number of pleasure cars included in the 1914 figures. December shipments go a long way towards causing these differences.

In December last 1,279 motor trucks were exported, against 88 in the same month of 1913—an increase of 1,191; the values in the respective years being $3,387,729 and $100,660—an increase of $3,287,129. There were 1,297 pleasure cars exported in December, 1914, against 2,301 in the same month of 1913—a decrease of 1,004 cars, and a decrease in value from $2,052,484 to $988,698, or $1,053,786.

In statistics for the month of December exports to France show the greatest increase—from a total of 120 cars, valued at $100,418, in 1913, to 969 cars, valued at $2,588,622, in 1914. Exports to the United Kingdom show a comparatively slight gain, from 648 cars, valued at $484,299, in 1913, to 860, valued at $1,097,007, in 1914. Italy and Germany were not represented in these December statistics, and exports to all other Europe fell off for the month from 160 cars in 1913 to 27 in 1914.

SOLID TIRE PRICES REDUCED.

The Firestone Tire & Rubber Co., of Akron, Ohio, on March 8 issued a new list of prices on solid truck tires. This list, which is net, quotes prices from 10 to 15 per cent. lower than any previously quoted on these tires.

A reduction of 20 per cent. has been made in the price of the Motz cushion tire, the manufacture and sale of which has been taken over by the Goodyear Tire & Rubber Co., of Akron, as mentioned on page 283 of our February issue; this reduction taking effect March 20.

BANQUET OF WASTE MATERIAL DEALERS

THE second annual banquet of the National Association of Waste Material Dealers took place at the Hotel Astor, New York, on the evening of Tuesday, March 16. The occasion was remarkably successful for an organization which had just reached its second milestone. The association, which numbered approximately 40 members at the conclusion of its first year and on the occasion of its last banquet, showed a strength of 101 members at the dinner held on the 16th ultimo.

The banquet committee, in addition to providing an excellent repast, furnished a highly interesting cabaret, including a monologist, a number of fair dancers, and a singer of pronounced vocal attainments.

Louis Birkenstein.

The toastmaster was Mr. Theodore Hofeller, first president of the association, who spoke in semi-humorous vein, and whose introductions were unusually happy. Among the speakers introduced by Mr. Hofeller were: Mr. W. T. Rodenbach, well known in reclaiming circles and the founder of the Reclaimers' Club; Mr. Evan G. Badger, president of the Philadelphia Paper Stock Dealers' Association; Mr. Frank C. Overton, acting president of the associated dealers in paper mill supplies in New York, and Mr. John J. Holland, secretary of the Paper Mill Supply Dealers' Association of New England. All of these gentlemen spoke in an interesting manner, all speeches being free from "waste material."

The only condition detracting from the enjoyment of the dinner was the absence of Mr. Louis Birkenstein, the re-elected president of the association and the gentleman through whose effective administration the membership was so appreciably augmented during his first term as president. His annual address was read in his absence by the secretary, Charles M. Haskins.

He first expressed his great regret because, owing to family reasons, he was not able to be present. He next referred to the progress that the club had made during the year, and the cooperation among all its officers in working for its welfare. He then continued:

"Every one in the trade is bound to admit that what we have accomplished is more than even the most sanguine anticipated. Few outside of the waste trade have any conception of the vastness of our industry and the difficulties under which we have been called upon to labor. We should educate the public as well as the trade to appreciate that our transactions are as legitimate and our members as substantial and reliable as can be found in any other line of business. Our principal purpose, therefore, is to impress upon our members to so conduct their business that no reproach can be made against their methods, integrity or honesty.

"Further than this, the different divisions have, after long deliberation, adopted specifications and rules which are considered fair by both buyers and sellers in and out of our association, and should make trading in these commodities more satisfactory. Our recommendation to the trade to arbitrate controversies has been taken advantage of more frequently than the members at large are aware, and in all cases has restored good feeling and made fair and equitable adjustments."

He spoke of the steps that had been taken to make arrangements of reciprocal benefit with the Berlin Metal Exchange, which arrangements of course were temporarily in abeyance because of the war. He stated that the association's Boston office had proved of great advantage, and believed that when a larger membership justified the increased expense it would be an excellent idea to have a second office in New York, where members could meet socially or for business purposes.

Several letters of regret were read from invited guests who were unable to be present, among them being a communication from ex-Governor Guild of Boston, and one from Mr. Frank H. Appleton, of the same city.

The newly elected officers are: Louis Birkenstein, president; Simon Weil, first vice-president; Daniel I. Murphy, second vice-president; Clarence B. White, third vice-president; Edward Stone, fourth vice-president; H. H. Cummings, fifth vice-president; P. Walsh, Jr., sixth vice-president; Charles M. Haskins, secretary; Mark Sherwin, treasurer; Theodore Hofeller, Ross B. Linton, Henry Lissberger, Charles Frankel, Isaac Grodin, Morton B. Smith, John Burke, James Rosenberg, Herman Sonken and Joseph Gatti, directors.

Among the prominent waste rubber dealers present were: D. Feinberg, Boston; S. Bers, Philadelphia; E. Frankel, Toronto; H. Birkenstein and A. Birkenstein, of Chicago; L. Loeser, Eugene Hofeller and Julius Hofeller, of Buffalo; N. E. Berzen, H. H. Cummings and E. A. Cummings, of New York.

THE SOCIETY OF AUTOMOBILE ENGINEERS.

The Society of Automobile Engineers has announced the membership of its Committee of Standards.

A new division of International Standards has been created and the adjustment of tire and rim standards in this and foreign countries will be one of the first undertakings of this new division.

It is to be hoped that an understanding will be reached with a view of reducing the difficulties encountered by American exporters in consequence of the lack of agreement between the sizes of products of this class in different countries.

Several prominent rubber men are members of the various divisions of the S. A. E. Standard Committee: W. H. Allen, of The B. F. Goodrich Co.; Y. E. Hale and E. R. Hall, of the Goodyear Tire & Rubber Co.; John V. Pugh, of Rudge-Whitworth; E. E. Bennett, of the Tire Manufacturers' Association; C. C. Carlton, of the Firestone company; C. B. Whittelsey, of the Hartford Rubber Works Co., and J. H. Wagenhorst, of the United Rim Co.

TIRE COMPANIES INTERESTED IN SPRINGFIELD AUTO SHOW.

An automobile show will be held in the Auditorium, Springfield, Massachusetts, from March 27 to April 3, arrangements for which were made at a banquet late in February of the Automobile Accessory Dealers' Association in that city, attended by representatives of several of the leading tire companies, notably the Fisk, Goodrich and Goodyear. In an address on that occasion on the subject of price maintenance, F. F. Moore of the Goodrich company spoke of the advantage to the consumer of a standard price that enables the honest dealer to stay in business by giving him a fair profit.

News of the American Rubber Trade.

SOME PRODUCTION FIGURES OF BOSTON WOVEN HOSE AND RUBBER CO.

Of the product of the Boston Woven Hose & Rubber Co.—embracing rubber goods of almost every description, with the exception of shoes and clothing—nearly a fourth consists of fruit jar rings. The output of these rings in one day is placed at 10 tons, and the yearly production, if linked together in the form of a chain, would twice encircle the globe. Rubber hose to the amount of 20,000,000 feet, in sizes from ⅛ inch to 4 feet in diameter—the latter for use on dredges—is produced annually. The average daily output of rubber heels is 6,000 pairs, and of rubber friction and insulating tape between 7 and 8 tons. The factories of the company are located at Cambridge and Plymouth, Massachusetts.

KATZENBACH & BULLOCK CO. OPENS CHICAGO OFFICE.

The Katzenbach & Bullock Co., which imports and deals in chemicals and colors, with offices at 100 William street, New York, and in the Broad Street Bank Building, Trenton, New Jersey, is opening a new office in the Railway Exchange Building, Chicago, in charge of Casper Smith, of New York. This company was incorporated, under the laws of New Jersey, in 1910, by Welling S. Katzenbach and E. L. Bullock, the business having been founded by the former in 1909, and has become favorably known to the trade throughout the United States and Canada. This Chicago branch will enable the company to care for its western trade even more satisfactorily than in the past.

THE REPUBLIC RUBBER CO. INCREASES ITS CAPITAL STOCK.

The new stock issue of the Republic Rubber Co., of Youngstown, Ohio, mentioned on page 337 of our March issue, has been authorized by stockholders, and new preferred stock, maturing in 1930, to the amount of $4,000,000 will be issued. Of this new issue $2,500,000 is to be applied to the retirement of preferred stock now outstanding and matured September 1 last. Shares to the value of $500,000 will be held in the treasury and issued as required, the proceeds of the remaining $1,000,000 to be devoted to enlargement of the company's business, principally for extending its sales facilities. Holders of outstanding preferred, up to 98 per cent. of the value of the securities concerned, have waived their right to require purchase of the retired preferred at 105 and are accepting shares of the new issue for their former holdings, share for share.

THE CHANCE TO GET A FINE PAINTING OF GOODYEAR.

In THE INDIA RUBBER WORLD for January, 1913, on page 215, there was a large halftone reproduction of a recently finished oil portrait of Goodyear. This painting shows the head and shoulders of Goodyear, life size, and it is one of the best ever made of the famous inventor. The features are strong in character and excellent in likeness. The artist, Miss Frances Chamberlin, of 739 Boylston street, Boston, is offering this portrait for sale. This is an excellent opportunity for some individual or company to get an exceptionally good portrait of Charles Goodyear.

THE CORN PRODUCTS REFINING CO.

The Corn Products Refining Co., manufacturers of "Paragol," a rubber substitute, of 17 Battery place, New York, held its annual meeting late in March, when F. H. Hall and Preston Davies were elected directors, to succeed F. T. Bedford, resigned, and J. A. Moffett, deceased. A telegram was received at this meeting from E. T. Bedford, president of the company, who stated that he was unable to attend owing to the hearings of the Government dissolution suit at San Francisco.

NEW $1,000,000 PREFERRED STOCK ISSUE FOR CANADIAN CONSOLIDATED.

At a meeting of stockholders of the Canadian Consolidated Rubber Co., Limited, of Montreal, Quebec, on March 8, a new preferred stock issue of 10,000 shares was authorized—to be allotted to present stockholders at par—and at the same time the directors were authorized to issue 200 shares of preferred stock then being held in the treasury. It is stipulated in the terms under which the new stock is to be issued that the United States Rubber Co., which owns a majority of the present stock outstanding, will take whatever part may not be subscribed for by the other stockholders, in addition to its own pro rata share. The proceeds of the sale of this new $1,000,000 issue are to be used for working capital, demanded by the increase and growth of the business.

RUBBER COMPANY DIVIDENDS.

The American Chicle Co., of New York, on March 22, declared the usual quarterly dividend of 1½ per cent. on its preferred stock, payable April 1 to stockholders of record on March 24; also the usual monthly dividend of 1 per cent. on common stock, payable April 20 to stockholders of record on April 15.

The Apsley Rubber Co., of Hudson, Massachusetts has declared a semi-annual dividend of 2 per cent. on its common stock and a similar dividend of 3½ per cent. on its preferred stock.

The Boston Belting Co., of Boston, has declared a quarterly dividend of $2 per share—payable April 1 to stockholders of record on March 22.

The Goodyear Tire & Rubber Co., of Akron, Ohio, paid on March 1 a quarterly dividend of 3 per cent., announcing that in future dividends will be paid quarterly instead of annually as heretofore.

The Kelly-Springfield Tire Co., of Akron, Ohio, has declared a dividend of 1½ per cent. on its first preferred stock, a dividend of 1¾ per cent. on second preferred stock—both payable April 1 to stockholders of record on March 15—and a dividend of 1½ per cent. on common stock—payable May 1 to stockholders of record on April 15.

The Republic Rubber Co., of Youngstown, Ohio, paid on March 1 a quarterly dividend of 1¾ per cent. on preferred stock.

The Rubber Goods Manufacturing Co., of New Brunswick, New Jersey, paid on March 15 a quarterly dividend of 1¾ per cent on preferred stock and a dividend of 1 per cent. on common stock.

CAPITAL STOCK CHANGES.

The Canadian Consolidated Rubber Co., of Montreal, Quebec, has increased its capital stock from $2,000,000 to $3,000,000.

The B. F. Goodrich Co., of New York, has reduced its capital stock from $90,000,000 to $88,000,000.

The Toledo Tire & Supply Co., of Toledo, Ohio, has increased its capital stock from $10,000 to $25,000.

RUBBER BANDS OUT OF A CLEAR SKY.

In a recent Hodgman catalog there is a very striking illustration having for its main thought a generous distribution of elastic bands. Hovering over the riot of sky scrapers that go to make up the city of New York is a gigantic aeroplane. From it comes a cloudburst of rubber bands, in boxes and in bulk. The air is full of them. The artist's conceit is one that catches the eye and stirs the imagination and suggests a big business in this specialty.

AJAX-GRIEB RUBBER CO. LIVING UP TO AGREEMENTS.

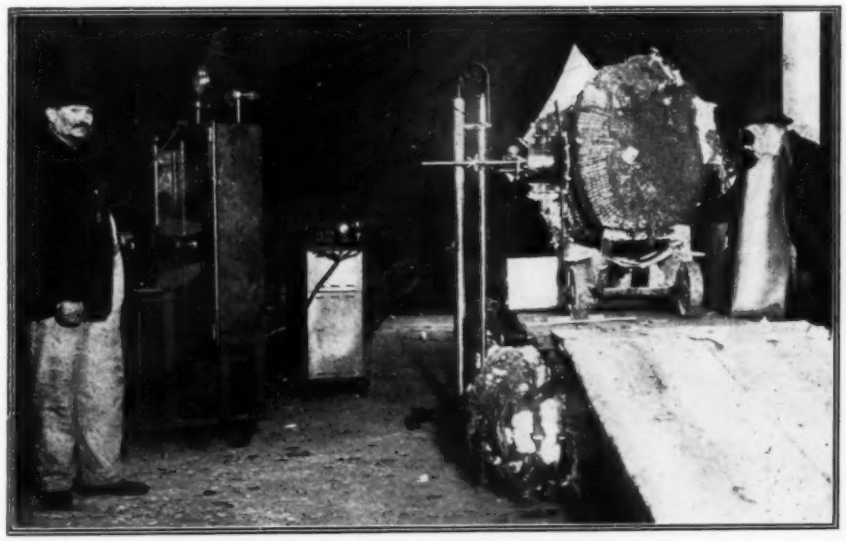
The Ajax-Grieb Rubber Co., of Trenton, New Jersey, which manufactures the Ajax tire, has sent the following notice to its tire dealers, asking their co-operation—by living up to the terms of the agreements under which rubber is now being purchased—in continuing the suspension of the British embargo:

"As manufacturers we are obliged to rely upon the good faith of our customers and their assurances that they will not export any Ajax tires, excepting to Great Britain, a British possession, France or Russia, and only to a European neutral country by way of the United Kingdom, and should any Ajax tires be exported to a non-European country you will give to the British Consul in your district the details of such shipments.

"The continuation of rubber shipments from Great Britain depends entirely upon the good faith of the American rubber trade, and we ask your co-operation in this matter."

HOW THEY DETECT RUBBER IN BALES OF COTTON.

The attempt to export rubber secreted in bales of cotton was described on page 314 of the March issue of this publication. The rubber was in the form of sheets laid very evenly inside of the cotton bales, with a thickness of several inches of cotton outside the rubber. But the X-rays to which export goods are subjected by the British Secret Service showed that there was some foreign substance concealed within the cotton. The illustration herewith shows the method of examining exports by means of the X-ray. In the picture a bale of cotton is being subjected to the rays. The inspector, standing at the right, can detect, when the rays are applied, any unevenness or peculiarity in the package before him. It will be noticed that not only is his face protected, but his whole body is covered with a sheet of rubber and lead, so that the rays going through the package may not have an injurious effect upon the inspector.



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British Secret Service Men X-Raying Bales of Cotton.

THE MISHAWAKA COMPANY TO MAKE A NEW LIGHT RUBBER.

The Mishawaka Woolen Manufacturing Co., of Mishawaka, Indiana, which manufactures the well-known "Ball Band" rubber boots, arctics, wool boots, etc., has started work on a new manufacturing and office addition to its plant. The new building will be 400 x 100 feet in size and will cost in the neighborhood of $500,000. With the completion of this addition it is expected that the company will increase the operating force from the present 2,600 to about 3,600, producing a new line of light weight rubbers, on which deliveries are to begin next January. The office portion of the new building will be six stories high and will be constructed with a view to "welfare" features and all conveniences for the office staff of 200 persons. The factory portion will be four stories high.

The Elgin road races, promoted by the Chicago Automobile Club, will be held this year August 20 and 21.

TRADE NEWS NOTES.

The Firestone Tire & Rubber Co., of Akron, Ohio, is soon to erect a brick building for its branch at Omaha, Nebraska, of which F. C. Rudisell is manager. This building will be 37 x 140 feet, three stories high, will cost approximately $35,000 and will be located on Furman street.

The Knight Tire & Rubber Co., of Canton, Ohio, has established a branch at 716 North Broad street, Philadelphia, in charge of Fred Harrington.

A rubber short boot, wool-lined, is the best footwear for the soldier in the present war, where he spends so much of his time in the trenches.

The Faultless Rubber Co., of Ashland, Ohio, is contemplating the addition to its plant of a two-story building 60 x 180 feet, also a two-story wing 50 x 50 feet.

On April 1 the Detroit branch of the Pennsylvania Rubber Co., of Jeannette, Pennsylvania, will remove to new and larger quarters in the Edwin St. George building.

C. Kuentzel, formerly connected with the Goodyear Tire & Rubber Co., of Akron, Ohio, and an inventor of machinery for use in rubber manufacture, has opened an office in Akron, as consulting engineer. He will devote special attention to the improvement and design of machines suitable to all branches of rubber goods manufacture.

The annual meeting of the American Automobile Association, for the year 1915, will be held in Boston, May 18 and 19.

Chewing gum wrapped in labels which describe it as flavored with fruit when it is not actually so flavored will hereafter be regarded as adulterated and misbranded within the meaning of the Food and Drugs Act.

The Society of Automobile Engineers will hold its summer meeting from June 14 to 16, inclusive, in conjunction with an excursion to Georgian Bay, starting from and returning to Detroit, on the steamer "Noranic" of the Northern Navigation Co. line.

Ingram & Son, of London, England, manufacturers of rubber nipples, and said to be the first concern to produce a practical transparent article of this nature, have recently increased their manufacturing facilities by factory additions, so that they are now in a position to fully meet trade demands. Their representative in this country is Ernest Monnier, Boston.

GEORGE E. PELL MOVES TO LARGER OFFICES.

Mr. George E. Pell opened an office about six months ago in the Produce Exchange Annex, New York, as a broker in crude rubber, but he has already outgrown his original quarters, and late in March he moved to more capacious offices in the same building. He is now to be found in rooms 4 and 5, floor L, Produce Exchange Annex.

PERSONAL MENTION.

Ralph W. Ashcroft, manager of the publicity department of the Canadian Consolidated Rubber Co., Limited, of Montreal, whose clever work in bringing the product of his company to the attention of Canadian buyers has been mentioned from time to time in this publication, paid New York a brief visit early in March. Mr. Ashcroft states that the war made such a demand on his company for boots and heavy goods that all the footwear coming under these two heads was cleared out from their storehouses everywhere in Canada. The reclaiming business of the company has also received a great impetus, partly because of the embargo laid upon all rubber scrap in Canada, forbidding its exportation anywhere outside the British Empire.

Marshall D. Wilbur, of Chicago, secretary of the Blodgett Rubber Co., of St. Joseph, Michigan, is said to be negotiating for the purchase of a hydro-aeroplane, for use between the two cities, the saving of time effected by this means being two hours on each trip, which by train takes three hours.

M. E. Baird, secretary and treasurer of the Bi-Lateral Fire Hose Co., of Chicago, made a recent brief visit to Daytona, Florida, stopping off for a day on his way from Beresford to Chicago.

W. E. Anderson has been appointed manager of the Chicago branch of the Dayton Rubber Manufacturing Co., of Dayton, Ohio, with headquarters at 2012 Michigan avenue.

R. K. Sheppard, of The B. F. Goodrich Co., elected president of The Associated Manufacturers of Electrical Supplies, formed on March 9, was presented on that occasion with a handsome silver loving cup by fellow members of the committee on organization, in appreciation of his services in the interest of the association's formation.

Edward T. Smith has been elected president and manager of the Chicago Rubber Co., to fill the office recently vacated by the resignation of L. C. Lawton.

D. M. Colwell has been appointed district manager of the Goodyear Tire & Rubber Co., for the southern district, which includes all the Southern states and has factory branches in Jacksonville, New Orleans, Birmingham, Charlotte, Atlanta, Memphis and Nashville. His headquarters are at Atlanta, Georgia. Mr. Colwell has been with the Goodyear company for the past five years, first working in the factory and becoming familiar with the manufacturing processes, and later, successively, as road representative, sales instructor and assistant manager of the sales department.

Arthur P. Mosby, formerly connected with the Knight Tire & Rubber Co., of Canton, Ohio, at its Baltimore branch, has secured sales rooms at 204 St. Paul street, Baltimore, and taken the sale of Midgley tires in and around that city.

William J. Slater, who has just joined the sales organization of the Firestone Tire & Rubber Co., at Akron, Ohio, was at one time advertising manager for the company, later occupying a similar position, in addition to that of sales manager, with one of the automobile concerns.

W. Howard Barcus, for the past 14 years traveling representative of the "Carriage Monthly," first in the Eastern states and later in Ohio, Indiana and Kentucky, has given up his work with that publication and become branch manager for the Fisk Rubber Co., of Chicopee Falls, Massachusetts. He will have charge of Fisk tire sales in the State of Ohio, with headquarters at Cleveland.

J. A. Moroney has been appointed sales manager of the carriage tire department of the Goodyear Tire & Rubber Co., Akron, to succeed M. E. Morris, transferred to a position as manager of the Pacific Coast district.

Charles H. Arnold, of the firm of Arnold & Zeiss, New York, who is convalescent from a severe attack of pneumonia, is spending a few weeks in Daytona, Florida.

Nicholas F. Brady, a director in the United States Rubber Co., is a stockholder in the newly formed Peoli Aeroplane Corporation, which has as its object the construction of armored war aeroplanes.

MR. BURRILL NEW UNITED STATES RUBBER CO. DIRECTOR.

At the last annual meeting of the United States Rubber Co., held on March 16, Mr. Middleton S. Burrill was elected a director. Mr. Burrill has not been the subject of as much publicity as usually falls to the lot of leading financiers, but he is known in Wall street as a man of ample resources, wide information and of large and successful operations. He is probably one of the best-informed men on general conditions to be found in the financial district, and his many successes prove him to be a man of exceptionally sound judgment. He cannot fail to add strength to the company's directorate.

SOME RUBBER MEN ON A SOUTHERN TRIP.

A party consisting of the directors and guests of the Atlantic Coast Lumber Corporation, the United Timber Corporation and The Georgetown & Western Railroad Co. left New York, March 18, for a five days' tour of inspection of these properties, which are located in South Carolina. The company included the following well known rubber men connected with the United States Rubber Co.: Colonel Samuel P. Colt, Francis Lynde Stetson, James B. Ford, Nicholas F. Brady, Lester Leland, Walter S. Ballou and Henry L. Hotchkiss—all of whom are directors of the United States company. In addition there were Samuel Norris and John D. Carberry, the company's secretary and assistant secretary. Other members of the party were United States Senator LeBaron B. Colt, of Rhode Island; Herbert L. Satterlee, of J. P. Morgan & Co., Raymond S. Farr, M. J. Quinn, R. J. Clifford and Frank J. Saxe.

ALGOT LANGE TO EXPLORE SOUTH AMERICA AGAIN.

Most men interested in the great rubber country of the Amazon are familiar with the explorations in that part of the world of Algot Lange, as he has written two books on the subject, besides many newspaper articles, and in addition has lectured quite extensively on what he has seen in his various Amazon visits. He expects to return to the lower Amazon next June to spend two or three years in a house-boat, visiting the waters of the triangular section of territory northwest from Para, including a part of Brazil and a corner of British Guiana.

THE ARREST OF A PSEUDO RUBBER MAN.

The New York dailies of March 4 contained the story of a raid made the day before on an apartment on Riverside Drive, that city, and the arrest for alleged cocain and opium smuggling of Tonko L. Milic, described as the "vice president of the Peruvian-Chamayro Rubber Co." The "Times" account contained this paragraph:

"Milic has traveled in South America. On his arrival in this country he established, the Federal authorities say, the Peruvian-Chamayro Rubber Corporation, and managed to sell some of its stock, although the District Attorney's office asserts that his interest in the plantations the company was supposed to own consisted merely of an option. The company until recently had offices at 60 Wall street."

The Peruvian-Chamayro Rubber Co. was incorporated, under the laws of Delaware, December 19, 1912, with an authorized capital of $700,000. The incorporators were Tonko L. Milic, 60 Wall street; George R. Allison, 64 Riverside Drive—both in New York—and Andrew E. Sanborn, Wilmington, Delaware, and the object of the company was to purchase, own, develop and sell lands and timber rights in the Republic of Peru, South America.

TRADE NEWS NOTES.

A company is being organized at Wichita, Kansas, for the manufacture and sale of automobile tires. The promoters of this enterprise are John J. Lane, of Wichita, and T. W. Blackwell, of Indianapolis, Indiana, the latter of whom has been connected for the past 12 years with The B. F. Goodrich Co.

The United States Tire Co. has opened a new sales branch at 16 Forest avenue, Portland, Maine, to serve the trade in that state and also in sections of New Hampshire and Vermont.

The Consalus Tire Co., although only recently incorporated, is not a new concern, having been in business as jobbers and dealers in automobile tires and tubes for several years, with headquarters at 336-8 Central avenue, Albany, and branch stores in Schenectady and Troy, New York. The company handles Mohawk and Gordon casings in addition to a line made under its own special brand, "Veco." V. E. Consalus, president of the company, is the principal stockholder.

The output of the Fisk Rubber Co., of Chicopee Falls, Massachusetts, according to the annual report, has been at the rate of 2,700 tires per day for several months past.

J. W. Coulston & Co., of New York, importers and manufacturers of colors for the rubber trade, are showing especially prepared red oxides of iron for rubber tires and treads, and also rouge for water bottle manufacture.

The Goodyear Rubber Hose & Packing Co., of Philadelphia, has removed from 221 to 241 Chestnut street.

Figures sent out by the Firestone Tire & Rubber Co., of Akron, show a 78 per cent. increase in output for 1914 and an increase of 50 per cent. in number of dealers handling the Firestone tire.

The Excel Rubber Co., of Akron, whose capital stock was recently increased from $10,000 to $50,000, is making preparations to remove its plant to Wadsworth, Ohio, where it has secured a factory site.

The Gaulois Tire Co., of New York, which represents in this country the Etablissements Bergougnan, of Clermont-Ferrand, France, makers of the Gaulois tire, has reduced the price of this tire, in line with the reductions recently announced by the American manufacturers, about 21½ per cent.

The Simplex Wire & Cable Co., of Boston, has been awarded a contract for the manufacture and laying of a three-conductor submarine cable about a mile long, to be laid across Great Bay just above the city of Portsmouth, New Hampshire.

The Charles T. Wilson Co., Inc., of which Charles T. Wilson is president and which does a crude rubber importing business at 46 Cortlandt street, New York, has become a member of the Merchants' Association of New York.

The Thermoid Rubber Co., of Trenton, New Jersey, has opened an office and service department in the Dime Savings Bank building, Detroit, Michigan, with W. E. Carpenter, J. H. Liston and H. R. Portugal as factory representatives.

In a race at Salduro, Utah, recently, between a locomotive and an automobile, a record of a mile in 25.2 seconds, or at the rate of 142.85 miles an hour, was made by the latter, the track consisting of a bed of crystalized salt, giving a hard level surface offering almost no friction to the rubber tire tread.

A building has been erected on the Panama-Pacific International Exposition grounds at San Francisco for the convenience of visiting representatives of the press, to whom it will be open until December 24.

In 1914 the United States imported rubber waste to the value of $26,537 from Denmark, as compared with $30,527 in 1913.

MANHASSET MANUFACTURING CO.

The statement submitted at the recent annual meeting of the Manhasset Manufacturing Co., at Providence, Rhode Island, showed a net surplus of $44,717 in quick assets over active liabilities. The largest item in the list of assets, with the exception of machinery and construction, was for raw cotton stock in process and finished goods, $141,296. The company, whose plant is at Putnam, Connecticut, and whose main offices are at Providence, specializes in high grade automobile tire duck, the demand for which during the past year has kept the factory continuously operating day and night. A new weave shed is being added which will considerably increase present capacity. The officers elected for the year are: President, Edwin D. Livesey; vice-president, Albert Howarth; treasurer, Roland H. Ballou; secretary, H. J. Thayer. These officers, with the exception of the treasurer, are members of the board of directors, which includes also William S. Cheney, Arthur Lord and William Mouir.

ELECTRICAL SUPPLY MANUFACTURERS ORGANIZE.

An association of the manufacturers of electrical supplies was formed on March 9 at a meeting called for that purpose at the Hotel Biltmore, New York. It is to be known as The Associated Manufacturers of Electrical Supplies. A constitution and by-laws were adopted, and a board of governors, in whom the management shall be vested, elected. On this board, among others, are R. K. Sheppard, of The B. F. Goodrich Co.; A. W. Berresford, of the Cutler-Hammer Manufacturing Co.; D. C. Durland, of the General Electric Co., and LeRoy Clark, of the Safety Insulated Wire & Cable Co. The organization started with 41 members, each of whom may have one or more "executive" and "associate" representatives, whose annual dues shall be $40 and $10 respectively, with $25 initiation fee. Members are divided into groups, according to the character of electrical supplies or materials they manufacture.

MANSFIELD TIRE & RUBBER CO. BUYS COLUMBIANA PLANT.

The Columbia Tire & Rubber Co. has been organized to take over the property and assets of the Columbia Rubber Co., of Columbiana, Ohio, which will be dissolved. The new company, capitalized at $300,000—two-thirds common and one-third preferred stock—will be operated as an auxiliary of the Mansfield Tire & Rubber Co., of Mansfield, Ohio, a majority of the stock being owned by the present management and stockholders of that company, and the board of directors of the Columbia Tire & Rubber Co. being practically identical with that of the Mansfield concern. The factory at Columbiana was completed two years ago, at a cost, with equipment, of about $135,000, and is said to be one of the finest in the state, but it has never been operated. W. G. Henne, sales manager of the Mansfield Tire & Rubber Co., will become general manager of the Columbiana concern, and A. E. Krannach, formerly superintendent at Mansfield, has been appointed factory manager of the new plant. This purchase will not interfere in any way with plans for extension of the Mansfield plant.

THE AMERICAN CHEMICAL SOCIETY.

The date of the fiftieth meeting of this society—at New Orleans, Louisiana—is March 31 to April 3, inclusive. The summer meeting of 1915 will be held at Seattle, Washington, August 31 to September 3, following which a day will be spent at Portland, Oregon, and the members will then continue together to San Francisco for a social session of one evening. A special train is being arranged for.

The American Chemical Society, organized in 1876, is one of the largest organizations of its kind in the world, having now more than 7,100 members. Membership is open to any reputable person interested in chemistry. The policy of organizing members into divisions has been adopted, and seven such divisions have been formed. There are also 45 local sections, situated in various parts of the country, which hold frequent meetings.

NEW INCORPORATIONS.

American Dirigible Balloon Syndicate, Inc., February 19, 1915, under the laws of New York; authorized capital, $10,000. Incorporators: Israel Ludlow and F. Harrison Higgins—both of 297 Madison avenue—and Hamilton Fish, Jr., 91 William street—all in New York City.

Columbia Tire & Rubber Co., The, March 17, 1915, under the laws of Ohio; authorized capital, $300,000. Incorporators: William G. Henne, Walter F. Henne, Jacob C. Henne, George W. Henne, Charles Hoffman and Jesse E. La Dow. To manufacture rubber tires and appliances for automobiles.

Consalus Tire Co., Inc., February 18, 1915, under the laws of New York; authorized capital, $15,000. Incorporators: Victor E. Consalus and Margaret A. Consalus—both of 432 Clinton avenue—and Edwin W. Sanford, 595 Central avenue—all in Albany, N. Y. To deal in tires and auto goods.

Dan-Mar Corporation, The, February 25, 1915, under the laws of New York; authorized capital, $25,000. Incorporators: Celia Solomon, 964 Eastern Parkway; David Greenbaum, 118 South Second street, and Moses Lewis, 383 St. John's Place—all in Brooklyn, N. Y. To deal in devices for making tires puncture proof, etc.

Dimond Tire Sales Co. of Long Island, Inc., March 6, 1915, under the laws of New York; authorized capital, $10,000. Incorporators: Thomas P. C. Forbes and Alexander Forbes—both of Freeport, and Julius Bindrim, 511 Lafayette avenue, Brooklyn—all in New York.

Globe Rubber Co., The, March 10, 1915, under the laws of Ohio; authorized capital, $20,000. Incorporators: F. A. Creque, F. C. Francisco, T. J. Francisco, L. H. Adams and W. B. Francisco. To manufacture a general line of dipped rubber goods.

Hardman Tire & Rubber Co., The, February 25, 1915, under the laws of Massachusetts; authorized capital, $10,000. Incorporators: Frank C. Hardman, 63 Parsons street, Brighton; George M. Foster, Peabody, and Ernest A. James, 29 Ruskin street, Boston—all in Massachusetts. To deal in automobile tires, tubes and supplies.

Iowa Qualityre Co., March 1, 1915, under the laws of Maine; authorized capital, $100,000. Incorporators: Albert F. Jones (president), A. B. Farnham (treasurer), James E. Manter (clerk)—all of Portland, Maine. Principal office, Portland, Maine. To manufacture, deal in and produce rubber, etc.

Leavitt-Mink Manufacturing Co., Inc., March 2, 1915, under the laws of New York; authorized capital, $2,000. Incorporators: Nathan C. Leavitt, 180 Spruce street, Newark, N. J.; Howard N. Hymes, 560 West One Hundred and Seventy-ninth street, New York City, and Isidore Mink, 433 Miller avenue, Brooklyn, N. Y. To manufacture rubber products, etc.

Michigan Qualityre Co., March 1, 1915, under the laws of Maine; authorized capital, $100,000. Incorporators: Albert F. Jones (president), A. B. Farnham (treasurer), and James E. Manter (clerk)—all of Portland, Maine. Principal office, Portland, Maine. To manufacture, deal in and produce rubber, etc.

New England Qualityre Co., March 1, 1915, under the laws of Maine; authorized capital, $100,000. Incorporators: Albert F. Jones (president), A. B. Farnham (treasurer) and James E. Manter (clerk)—all of Portland, Maine. Principal office, Portland, Maine. To manufacture, deal in and produce rubber, etc.

Powers Rubber & Supply Co., Inc., January 29, 1915, under the laws of New York; authorized capital, $3,000. Incorporators: Martin C. Powers and Lena M. Powers—both of 749 Crotona Park North, and Warren A. Schenck, 55 Liberty street—all in New York City. To deal in tires and other rubber goods.

Qualityre Rubber Co., March 1, 1915, under the laws of Maine; authorized capital, $100,000. Incorporators: Albert F. Jones (president), A. B. Farnham (treasurer) and James E. Manter (clerk)—all of Portland, Maine. Principal office, Portland, Maine. To manufacture, deal in and produce rubber, etc.

Rapid Seal Distributing Co., February 10, 1915, under the laws of Delaware; authorized capital, $100,000. Incorporators: Joseph A. Vogel, Harry R. Loose and George W. Collins—all of Wilmington, Delaware. The office of said company is with Mr. Harry R. Loose, Wilmington, Delaware. To manufacture, produce, purchase, sell and deal in any and all kinds of puncture healing liquids for tires.

Schmid-Lyon Rubber Co., Inc., March 9, 1915, under the laws of New York; authorized capital, $100,000. Incorporators: Paul L. H. H. Henkel and Ossian G. Lyon—both of Akron, Ohio—and Julius Schmid, 470 Fourth avenue, New York City. To manufacture rubber goods, surgical supplies, etc.

Strand Raincoat Co., Inc., March 22, 1915, under the laws of New York; authorized capital, $5,000. Incorporators: Harold Sass and Gustav Sass—both of 104 Second avenue—and Charles Goldsieger, 81 Norfolk street—all in New York City. To manufacture rubberized clothing, etc.

Success Rubber Co., The, February 1, 1915, under the laws of Ohio; authorized capital, $5,000. Incorporators: Clarence B. Keemer, John M. McCabe, Walter G. Kirkbride, L. M. Davis and Joseph L. Skeldon. To manufacture, sell, etc., rubber tires and rubber goods.

Utah Qualityre Co., March 1, 1915, under the laws of Maine; authorized capital, $100,000. Incorporators: Albert F. Jones (president), A. B. Farnham (treasurer) and James E. Manter (clerk)—all of Portland, Maine. Principal office, Portland, Maine. To manufacture, deal in and produce rubber, etc.

THE MANSFIELD COMPANY WINS SUIT.

In the early part of March a case was tried in New York City in which Rossbach & Bros., dealers in crude rubber, brought suit against the Mansfield Tire & Rubber Co., of Mansfield, Ohio, for $34,500, claimed for alleged breach of contract.

A contract was made between the importers and the Mansfield company in August, 1912, under which the company was to take 33 tons of crude rubber, to be delivered during the year 1913. The importers alleged that when rubber, in the spring and summer of 1913, dropped in price below that mentioned in the contract, the defendants refused to accept deliveries. The defendants alleged that the contract was first broken by the importers, who failed to deliver rubber under its terms promptly during the first part of the period covered, when the market price was somewhat above that mentioned in the contract. The jury found for the defendants.

CENTURY RUBBER WORKS ELECTS OFFICERS.

The Century Rubber Works, of Chicago, recently held its annual meeting, electing the following officers for the year: President, Frank Netzel; secretary, Henry Venn; treasurer and general manager, Charles J. Venn.

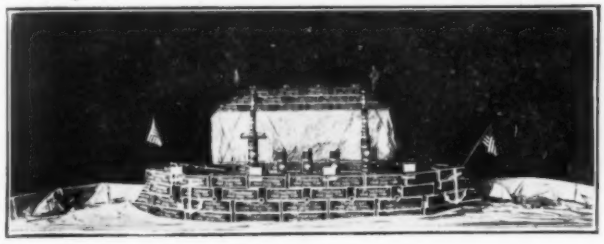
This company is now making hoof pads, bar shoes, rubber soles—plain and leather tipped—automobile accessories, packing, and a general line of mechanical molded goods.

CRUDE OIL AND TIRES.

It is becoming customary in most parts of the United States to spread a coating of crude oil over newly finished macadam roads. Driving through a fresh coating of this oil is very hard on tires unless care is taken to remove the oil with a little soap and water at the end of the day. Crude oil is a bitter enemy of rubber and a few minutes passed in cleaning it from tires is time well spent.

CONVERTING THE HARMLESS INNER TUBE INTO A MAN OF WAR.

The present conflict has been marked by extraordinary development in naval warfare. Not to be outdone by other inventors of new floating engines of destruction, the Firestone Tire & Rubber Co. has produced a marine monster of novel design and formidable aspect. As will be noticed by close scrutiny of the accompanying photographic cut, the hull of this armored cruiser is composed of a number of boxes containing the Firestone "Pure Para Tube." The turrets and smoke stacks



are built of tubular boxes such as are usually used for talc and rubber cement. With the addition of a little cordage and anchors and lookouts made of cardboard, this floating fortress becomes complete. Properly to set it off, it is surrounded by a cloth-made ocean with an undulating surface and with a sprinkling of small sailing craft that act as convoys. This man-of-war, armored with inner tubes, was recently used for a window display and naturally, in the present warlike state of the public mind, attracted much attention.

IS THE NATIONAL RUBBER STAMP ASSOCIATION A TRUST?

The National Rubber Stamp Association and six of its members in Denver, Colorado, have been made defendants in a $65,000 damage suit instituted by C. E. Buffington, a manufacturer of novelties. The complaint charges that as a result of the refusal of the association's members in Denver to furnish him with supplies he was forced to retire from business. The firms named are the Superior Rubber Type Co., the Denver Novelty Works & Electric Co., the Sachs-Lawlor Co., A. S. Carter, George Kauffman and the E. R. Callaghan Novelty Co., all members of the national organization, whose main offices are in Chicago. Buffington charges that the association is virtually a trust in restraint of trade, and $50,000 of the amount sued for is being demanded as punitive damages.

SULPHUR PRODUCTION AND PROFITS.

Some interesting facts have been brought to light by the motion for reappraisal of 505 shares of stock of the Union Sulphur Co. owned by the late Herman Frasch, notice of whose death appeared, with a brief sketch of his career, on page 599 of our issue of August last. The net assets of the deceased were appraised at $5,261,766, the shares in question being valued at $1,136,250, whereas they are said to have a value of from $25,000,000 to $30,000,000. Investigation discloses that the company owned one mine in Louisiana appraised in 1911 by local tax officials at $10,000,000; that the dividends yearly for the last three years from this mine had been more than $4,500,000; that the profits of the year 1912 on the sale of 302,342 tons of the 786,605 tons of sulphur mined that year amounted to $4,500,000, and that since 1911 the company has established plants at Cette and Marseilles, France, at Rotterdam, Holland, and at Hamburg, Germany. The widow and daughter of the late Mr. Frasch share equally for life the income from the estate.

The Republic Rubber Co., of Youngstown, Ohio, has leased a store in the Murray building, Grand Rapids, Michigan, for its branch in that city.

CENTURY RUBBER CO. ASKS FOR RECEIVER.

The Century Rubber Co., of Plainfield, New Jersey, recently made application to the United States District Court for the District of New Jersey for a receiver, and Frank P. McDermott, of Jersey City, was appointed. This application does not allege bankruptcy or insolvency, but states that owing to existing financial conditions the company was unable to collect its accounts and the business was being conducted at a loss. A receiver was therefore sought and appointed to conserve the assets, which, the bill asserts, at a fair value can be sold for a sum in excess of the indebtedness of the company and realize a substantial sum to the stockholders, the plant being wholly unencumbered and in good condition and there being no outstanding bonds.

The plant of the Century company is reported running full time under the receivership, and it is the hope and expectation of the company to not only fulfill all its contracts, but to shortly effect a reorganization.

TRADE NEWS NOTES.

The Hoggson & Pettis Manufacturing Co., of New Haven, Connecticut, which manufactures a line of tire makers' tools, shoe rolls, etc., is displaying at the Panama-Pacific Exposition now in progress at San Francisco.

Other eastern concerns exhibiting at this exposition, in the Palace of Manufactures, are the Foster Rubber Co., manufacturers of rubber heels, of 170 Summer street, Boston; the Live Leather Belt Co., of New York, manufacturers of the leather and rubber belt described on page 608 of our issue of August last, and the General Bakelite Co., of New York, which manufactures hard rubber substitutes.

The Grand Prize of the Automobile Club of America and the Vanderbilt Cup were both recently competed for on a course within the grounds of the Panama-Pacific Exposition, and both won by the Anglo-Italian, Dario Resta, in a French Peugeot racer, on Nassau tires. The Grand Prize was won under very trying conditions and the winning Peugeot carried Weed Chains throughout the 340 miles of the race, this being the first contest in which this device has been used.

At the annual meeting of stockholders of the Stoughton Rubber Co., of Stoughton, Massachusetts, held at the principal office of the company, 232 Summer street, Boston, March 23, Ira F. Burnham was re-elected to the office of president and treasurer, and Alvah H. Whitten to that of assistant treasurer. A board of directors was also elected, including, besides these two officers, Ellsworth H. Hicks, Charles A. Hunter and Lester Leland.

The Fisk Rubber Co., of Chicopee Falls, Massachusetts, has opened a branch house at 217 Washington street, Binghamton, New York, where a stock of tires will be carried for distribution in that section of the State and in Susquehanna and Bradford counties in Pennsylvania. G. C. Camp is manager of the new branch, one of 46 such stores now established by the company.

The factory of the Converse Rubber Shoe Co., in the Edgeworth district of Malden, Massachusetts, closed down on March 17 for annual inventory, repairs and improvements.

Records of sales by the Goodyear Tire & Rubber Co., of Akron, show that the straight side tire is making a great gain in popularity over the clincher type, sales of the former amounting to about 65 per cent. of the total in 1914, while the present season shows about 83 per cent. of the new cars using this straight side type of tire. In 1913 about 50 per cent. of the new cars were equipped with Q. D. clincher tires and rims.

A letter recently received from the Rubber & Celluloid Harness Trimming Co., of Newark, New Jersey, contains this paragraph: "The idea put forward by motor car promoters that the horse-drawn pleasure vehicle is passing is disproven by the experience of makers of hard rubber trimmings, their output for last year comparing favorably with former years in volume with good prospects for its continuance."

RUBBER TRADE INQUIRIES.

Address supplied on application, or letters to Box No. given promptly forwarded.

[105] A firm of manufacturers in Great Britain writes us that they will soon be in the market for the following equipment, asking to be put in touch with manufacturers in a position to give prompt deliveries: High speed braiding machines for covering electric wire and cables, lead covering machinery, rubber mixing and calendering machinery, cable makers' testing equipment and vulcanizing plant.

(106) An American manufacturer will be in the market in the course of the next four or five weeks for a complete line of machinery for equipping a small factory for the manufacture of mechanical rubber goods.

GOVERNMENT SUPPLIES.

Bids will be opened by the Bureau of Supplies and Accounts, Navy Department, Washington, on April 13, for electrical supplies, including "rubber, sheet, hard," under schedule No. 8,067. Schedules may be obtained upon application to the Navy Pay Office nearest each navy yard, or from the Bureau direct.

Sealed proposals will be received at the office of the Field Medical Supply Depot, United States Army, 21 M street, N. W., Washington, for furnishing combination hot water bags and syringes. For quantities and specifications application should be made to the above office. Report No. 2,160.

The Bureau of Supplies and Accounts, Navy Department, Washington, will receive bids until April 6 for the following: Schedule 8016—air hose, rubber-lined cotton hose, rubber fire hose, upper deck fire hose, unlined linen fire hose, garden hose, rubber fire hose, rubber hose to wash deck, and suction hose; Schedule 8017—flexible metallic copper hose, rubber hose, wire wound rubber hose, wire wound rubber steam hose.

Bids will be opened April 20 by the Bureau of Supplies and Accounts, as above, on 400 feet of 1¼-inch rubber hose, under schedule 8,097.

TRADE OPPORTUNITIES FROM CONSULAR REPORTS.

The representative of a large rubber plantation in the East Indies has informed an American consul that he is producing about 20,000 pounds of rubber per month (two-thirds smoked sheet, one-third crêpe) and that he desires to establish commercial relations with firms in the United States that might care to import rubber. Report No. 15,822.

A merchant in Greece wishes to communicate with American exporters of rubber for rubber stamps. Report No. 15,869.

A firm in Europe wishes to correspond with American manufacturers of rubber thread to be used in the textile industry. A sample of the style of thread desired may be obtained from the Bureau of Foreign and Domestic Commerce or its branches. Report No. 15,504.

A tobacco firm in the United States has informed the Bureau of Foreign and Domestic Commerce that one of its customers doing a general export and import business in Africa desires to find a market in the United States for gutta percha. Report No. 15,521.

A manufacturer in one of the neutral European countries desires quotations on material similar to samples of rainproof cloth which may be examined at the Bureau of Foreign and Domestic Commerce at Washington or its branch offices. Report No. 16,026.

The important role played by cotton in the rubber industry will be readily understood when it is stated that, estimating at 10,000,000 the tire production of the United States for 1915, about 45,000,000 pounds of cotton will be consumed by the American tire industry.

THE NAVY DEPARTMENT TO ASK BIDS ON DIRIGIBLES.

The United States Government has under consideration the establishment of government plants at New York and Philadelphia for the manufacture of aeroplanes, plans having been prepared by the Navy Department for such buildings, each to cost about $30,000 and to be capable of turning out two or three machines a month at an individual cost of $6,000.

The Navy Department is also about to experiment with dirigible balloons, to determine their availability for use on warships. One feature of this aircraft which makes it seem especially desirable in this connection is its ability to hover for long periods over a given spot. Specifications have been prepared for a dirigible upon which proposals will soon be invited. These call for a machine 175 feet long, 50 feet high and 35 feet wide, capable of lifting and carrying through the air at a speed of 25 miles an hour for two hours, a weight of one ton, in addition to crew and necessary supplies.

RECENT CUSTOMS RULING.

The board of United States General Appraisers has overruled the protest of the American Express Co. in the matter of duty on gloves composed of cotton and rubber. The company claimed such imports to be dutiable at 15 per cent., under paragraph 368 of the 1913 tariff act, whereas they were assessed at 30 per cent., under paragraph 256 of the act, which provides for "articles of wearing apparel of every description composed of cotton or other vegetable fiber and india rubber and not otherwise specially provided for in this section." According to the decision, this paragraph covers all articles of wearing apparel composed in part of india rubber, without regard to what is the component of chief value. The decision goes on to say that "the importer did not make the claim at the trial that the gloves in question are druggists' sundries, and on the evidence before us we hold that the merchandise is dutiable under paragraph 256 as returned."

TRADE NEWS NOTES.

An interesting lecture on "Tires, Their Use and Abuse" was delivered on the evening of March 11 at the West Side Young Men's Christian Association, Eighth avenue and Fifty-seventh street, New York, by G. J. Tietjen, factory sales manager and chief adjuster of the Rutherford Rubber Co., of East Rutherford, New Jersey. The lecture was given under the auspices of the automobile school of the Association, and at its close questions by the audience on the subject of tires were answered by the lecturer.

PERSONAL MENTION.

Victor van der Linde, whose retirement from the Century Rubber Co., of Plainfield, New Jersey, was announced in these columns several months ago, has become associated with the Union Tire & Rubber Co., of St. Louis, Missouri, as superintendent. The company intends to manufacture a high grade guaranteed tire and tube, later entering the market with a competitive line. The present capacity of the plant is stated to be 500 tires per day.

A serious accident recently occurred at the plant of the Vulcanized Products Co., at Muskegon, Michigan, when a vulcanizing press exploded. Of the two men working on the press at the time, one, Jay Caswell, was severely, if not fatally, burned, receiving nearly the full force of the escaped steam, and the other received painful injuries. The press, of course, was completely wrecked.

The Federal Rubber Manufacturing Co.'s branch at Minneapolis, Minnesota, of which H. F. Bigelow is manager, is to have new and handsome quarters at 1117 Hennepin avenue, plans being in preparation by the Milwaukee company for the erection of a building, two stories high, with basement.

The Elyria Wire & Rubber Co., incorporated early in March under the laws of Ohio, with a capital stock of $250,000, will operate a plant at Elyria, Ohio, manufacturing the products from which it takes its name.

THE RUBBER TRADE IN BOSTON.

By Our Regular Correspondent.

TAKING all accounts, by and large, opinions are most optimistic regarding future prospects for a good, busy season. The tire manufacturers say this is to be the greatest year in automobiling since the horseless carriage became a practicable business proposition. Those making tires hereabouts report good orders booked, and more in prospect, while agents of manufacturers in other states tell the same story. The rubber shoe factories are all busy. The season now closed has been a good one, and orders are coming in remarkably well for March business. There is but a moderate call for belting, but hose is in demand in anticipation of the suburban summer call, while there seems to be a better than normal demand for fire hose. The call for special hose for vacuum cleaners is on a steady increase. Druggists' goods always go well at this time of year, and the present demand is satisfactory. Rubber clothing makers are reasonably busy, with the men on the road hustling for business. Trade in rubber heels and soles is flourishing, and it is a pretty poor month when no new concern starts in this line.

* * *

The Needham Tire Co., which has just fitted up a factory at Charles River Village, has started operations with a capacity of 100 tires a day and with sales guaranteed for half that number. Messrs. Patterson, father and son, who were with the Patterson Tire Co., of Lowell, are both at the factory, taking personal charge of the manufacture, the distributors being J. H. & G. L. Atwood, of 182-184 Friend street. Needham tires are of the clincher, quick detachable and straight-side types, with plain and non-skid treads, the former selling with a guarantee of 3,500 miles' service, and the latter 5,000 miles.

* * *

News was received here early last month of the death of Frank H. Dodge at Laurel, California. Mr. Dodge was formerly superintendent of the Fells factory of the Boston Rubber Shoe Co., retiring a few years ago, when he went to Laurel and, with his son, secured an orchard and went into fruit raising. He had many friends in Melrose, where he was for a number of years a resident, and where he was prominent in beneficiary and fraternal organizations. He leaves a widow and a son, Robert, who was associated in business with him in California.

* * *

Rubber, from the Amazon to the shoe store, was recently explained to the class of the Shoe and Leather Continuation School by George E. B. Putnam, editor of the rubber department of the "Boot and Shoe Recorder," who illustrated his talk with lantern slides furnished by the editor of THE INDIA RUBBER WORLD. Mr. Putnam repeated his lecture to the Boy Scouts of his home town, Newton Centre, and by invitation will entertain his brother Masons with a similar talk on the same subject.

* * *

There may be ill-luck in the number 13, but certainly this has not applied to the Automobile Show held in Boston last month, which was the thirteenth annual exhibition of this nature. It is not yet announced how many attended, but it was somewhere near a quarter of a million people. Every day was a buying day, and many machines were sold, more than at any previous show, with plenty of "prospects" booked for future business. The outlook is for a busy season in New England, with a prospective demand for tires and other rubber accessories which will serve to keep the factories booming, even at a time when pessimists are prone to report that times are hard in some industries.

Quite a number of tire concerns had exhibits, and all of them appeared well satisfied with the attention given their display, and the sales they made.

Sterling Tires, made by the Rutherford (New Jersey) Rubber Co., were exhibited by W. M. Cowles, the sales manager for New England. There was a practical demonstration in the method of making tires, two tires a day being constructed in full view of the many visitors who crowded around the booth to watch the expert maker.

The Enterprise Rubber Co., of this city, exploited the G. & J. tires at its booth, which was in charge of R. E. Jackson, manager of the tire department. Prominent in this exhibit was a flashing sign showing the big seal of the United States Rubber Co.

"Imperial" tires were shown by the American Motor Equipment Co., G. S. Van Voorhis, the president of the latter company taking personal charge of the exhibit. These tires are made by the McGraw Tire & Rubber Co., of East Palestine, Ohio.

W. T. Underwood, branch manager, exhibited Miller one-cure wrapped tread tires, made by the Miller Rubber Co., of Akron, Ohio.

Mohawk Tires, also made in Akron, by the Mohawk Rubber Co., were shown by the Green & Swett Co., of Boston, Russell T. Green of that firm being in charge. Besides these tires, Mr. Green gave a continuous demonstration of the Sampson repair plug for inner tubes.

W. A. Ellis, of the Ellis-Ward Co., waxed eloquent in talking Reliable tires and also Portage tires, which the company handles.

Salesman Duffie, who covers the Middle States as traveling representative for the Midgley Tire & Rubber Co., of Lancaster, Ohio, arranged an attractive exhibit of the steel wire embedded tires made by that company.

The Dujardin Rubber Co., of New York, sent its factory representative, J. H. Parsons, to install an exhibit and to extol the merits of the Economy tube to prevent blow-outs. Mr. Parsons was kept busy explaining and demonstrating to automobile owners, who were interested listeners and investigators.

Another blow-out preventive was shown by I. Flexner, of Flexner & Gylling, New England agents for the inner tube armor made by the Interstate Manufacturing Co., of Mt. Clemens, Michigan.

Mr. Everett and Mr. Newcomb, of the Dayton Tire Co. of New England, were in attendance at the exhibit of Marathon tires made at Cuyahoga Falls, Ohio, by the Marathon Tire & Rubber Co.

V. J. Mulherin, New England distributer for the product of the Howe Rubber Co., of New Brunswick, New Jersey, proved himself an efficient demonstrator and salesman.

Much interest was manifested in the exhibit of the Triplex pneumatic inner tube, which to all intents and purposes enables the motorist to have on each tire three inner tubes, thus allowing for three punctures, blowouts or similar troubles, before it is necessary to remove and renew.

Harry Braender, vice-president of the Braender Tire & Rubber Co., of Rutherford, New Jersey, and F. E. Kelly, eastern representative, were on duty exhibiting the tires bearing the Braender name, and explaining their claims for superiority.

A crowd was to be seen at all times surrounding the booth where Sewell Cushion wheels were being shown and their ingenious construction explained. These wheels for motor trucks are made by the Sewell Cushion Wheel Co., Detroit, Mich., and their exhibit at the show was managed by E. H. Milliken, Boston representative.

The Dreadnaught Tire & Rubber Co., of Baltimore, was represented by C. C. Fox, New England manager. At this booth were shown several tires with remarkable records, among them one which had given a service of 11,328 miles, by George H. Robertson, the well-known racer, and which Mr. Fox considered capable of a thousand more miles. At this booth were distributed some very ingenious miniature models of Dreadnaught vacuum tires to which straps were attached, making them applicable for watch-fobs, a decidedly novel idea.

And speaking of advertising matter, Champion spark plugs were well exploited by the distribution of red rubber balloons on which the name was printed in white letters. Several thousand of these balloons were distributed at the fair and, besides, they were given to diners in the various fashionable dining rooms and cafés during the week of the show.

The Standard Woven Fabric Co., of Framingham, Mass., had a notable exhibit of Multibestos brake lining, friction tape and other rubber and cloth fabrics for mechanical purposes. This was in charge of M. D. Davieson and R. D. Northrop, salesmen for the company.

* * *

Not only is the factory of the Boston Rubber Shoe Co. busy on its standard lines of rubber footwear, but it is turning out an excellent quality of rubber soles, which are being sold quite extensively to manufacturers of leather shoes. Besides this, a large department is kept busy in making the Knu-Shu, a canvas-top, rubber-sole and heel working shoe which has attained a remarkable popularity.

* * *

George Randall (son of C. W. Randall, London agent of the Hood Rubber Co.), who came to this country to learn by practical experience in the Hood Rubber Co.'s factory the *modus operandi* of making rubber goods, returning home a year or two ago, was a member of one of the British regiments and went to the front with his comrades. The many friends he made while here will regret to learn of word having been received last month that young Randall was killed in action in a recent battle.

THE RUBBER TRADE IN CHICAGO.

By Our Regular Correspondent.

THE past month in the local rubber trade has been the best of the year thus far. The mechanical line has been the subject of an especially brisk demand from all sections of the Middle West and the West. Garden hose orders, which were slow in January and early February, have been coming with a rush for several weeks past, and a great deal of shipping on this item alone has been done. The several rubber clothing men interviewed declare that they have all the orders they can handle and that it is a question of getting the goods out promptly rather than of getting the orders.

* * *

Buck & Raynor, the large drug firm which has always featured rubber goods in the big store at the corner of State and Madison streets, the "busiest corner in the world," has started the erection of a fine new building two blocks farther south, at Adams and State streets. The structure is to be modern in every respect and a special department will be devoted to rubber specialties. The window space is to be constantly at the disposal of the rubber department, so that while the articles featured from week to week will be different, nothing but rubber goods will be placed in the windows. The company has offered a prize of $100 to the person submitting the most suitable name for the building.

* * *

The sub-basement sales of rubber goods in the department stores here may become a thing of the past if certain legislation which is now planned passes the city council. Commissioner of Health Young has introduced a measure which calls for the elimination of the sub-basement for trade purposes, and from present appearances it is extremely likely that it will pass. The sub-basement sales have played an important part in the workings of the department stores in the past, being widely advertised to the foreign population. Mr. Young in a recent address stated that he believes thirty feet below the level of the street to be too far down to take the public to sell goods.

* * *

Edward G. Leszynsky, president of the Asphalt & Rubber Co., died recently at St. Luke's Hospital here after an operation for appendicitis. He was one of the best known and most popular rubber men in the city. He had been ill only three days. He was a native of California and a graduate of the University of Heidelberg, Germany, and of Columbia University, New York. He leaves a widow and one daughter. The funeral was held at Racine, Wisconsin. He was 59 years old.

* * *

The Manufacturers' Rubber & Supply Co. has incorporated for $10,000 and will conduct a business in this city. Automobile supplies and rubber goods in general will be handled. It is probable that a location at some point along "automobile row" will be selected as headquarters. The incorporators of the company are W. E. Anderson, W. R. Anderson, and N. Johnson. The company will carry some fine line of inner tubes for automobiles and motorcycles and will also pay considerable attention to the smaller rubber items of a practical nature.

* * *

Rubber firms that have been looking for contracts for hose and matting on some of the new buildings going up in the "loop" district are much disappointed over the fact that a strike among the lathers and wood finishers has tied up the work on a number of the jobs and thus delayed the granting of contracts. However, there is every chance, according to recent reports, that the labor trouble will be settled soon, and then the business will probably be given out without further delay.

* * *

The Consumers' Tire & Service Co. has incorporated in Chicago to own, hire, repair and let automobiles, tires, etc. All rubber accessories to automobiles will be handled. The incorporators are Lynn S. and Earl C. Snow, and Robert A. Stevens. All of the incorporators are well experienced in the automobile supply line, having worked with various concerns around the city.

* * *

About April 1 the Hamilton Rubber Manufacturing Co. and the American Belting Co., represented by Elmer E. Bast, at 168 W. Randolph street, will move to handsome new quarters at 1229 S. Michigan avenue, occupying the entire first floor and basement of one of the finest structures on "automobile row."

* * *

Another concern which is to move soon from present location is the New York Belting & Packing Co. However, the company will not move far, going from the present address at 130 W. Lake street to the building immediately next door. Repairs are now being made on the front of the building into which this company will move.

* * *

Five per cent. of the total gross sales of a commercial establishment is not too much to spend for advertising, according to the statement of Henry C. Lytton, president of the "Hub," and one of the oldest and most respected of the pioneer State street merchants, in an address before the Illinois Retail Clothiers' Association last week. Mr. Lytton said that as he grew in years and experience he would even feel inclined to increase this per cent.

GOVERNMENT IN CONTROL OF PROCESS FOR PRODUCING BENZOL AND TOLUOL.

A process has been discovered, according to a report of the Secretary of the Interior, by Dr. Rittman, a chemical engineer employed by the Bureau of Mines, for the derivation from crude petroleum of benzol and toluol, for use in making high explosives and aniline dyes, and a co-operative arrangement has been entered into between the Bureau and a company which manufactures explosives for the establishment at Pittsburgh of a plant costing not less than $200,000 for carrying on this work. Patents have been issued on the process and under the contract all devices, improvements, etc., developed at this experimental plant are to be "subject to patent by the Bureau of Mines, for the benefit of the public."

THE RUBBER TRADE IN RHODE ISLAND.

By Our Regular Correspondent.

THERE has been a general revival of trade among the rubber factories throughout the State, which are now surpassing all records made in previous years. All are running to capacity, with some contemplating an overtime schedule. In the case of automobile goods, especially tires, the demand is heavy, due to the fact that many of the manufacturers of trucks and pleasure machines have put off until now the placing of orders for equipment.

* * *

The Revere Rubber Co. has started on an overtime schedule, its plant in Providence at present being operated three nights a week with a possibility of soon making two complete shifts daily to keep pace with the orders. This increase is said to be entirely on domestic orders, little, if any, of the product being for European shipment.

* * *

The Washburn Wire Co., of Phillipsdale, according to its annual statement recently issued, earned dividends of 7 per cent. on preferred and 7 per cent. on the common stock for the year 1914, the profits being $269,255.31, or $6,755.31 more than required to pay full dividends on both classes of stock. The surplus now stands at $1,270,724.03, against $1,263,968.72 a year ago. Profits, however, were $372,907.28 one year ago, after deducting a depreciation of $106,815.76 on machinery and buildings. The proportion of liquid assets to total assets continues to be very satisfactory, and the floating debt was much reduced during the year 1914. The dividend rate on the common stock was not raised from 5 to 7 per cent. until the April quarter of 1914.

* * *

The boom reported a month ago at the National India Rubber Co., Bristol, continues, and if anything is more decided than at that time. The lawn tennis shoe and insulated wire departments at present have a payroll of 2,300 employes, and this number is being daily increased, as fast as competent help can be secured. The congestion in the residence districts has been so great that a plan is being developed for erecting quite a number of new houses as tenements for the operatives. The big D'Wolf Inn, which has been used for several summers as a hotel, has been leased by the National company and fitted up as a boarding place for the additional women employes, of whom some 200 are thus accommodated.

The National company is having new buildings erected to connect its storehouses on Wilson's lane, thus adding materially to the size of the factory. A new office has been constructed in connection with the shipping end of the wire-insulating department, and additional trackage has been added for the handling of the increasing freight.

Fire escapes have been placed on the company's three-story building at Wood street and Wilson's lane, formerly used as a storehouse, but now transformed into a shoe-making department and new stitching room.

William W. Franklin, son of Superintendent James W. Franklin, of the National company, and an assistant to his father at the works, died during the past month.

William Moffett, who had been employed at the National company for about 40 years, died suddenly on March 5 from grippe and Bright's disease. He was 65 years of age and at the time of his death held a responsible position in the tennis shoe department.

* * *

Colonel Samuel P. Colt, president of the United States Rubber Co., has at his home in Bristol a high-power Mercedes touring automobile of some historic interest, having been returned to him by the French government. It arrived at Bristol on March 8, and is in good condition, although it had been used in the war zone by the French for some time. Colonel Colt had this car with him last summer in Europe when the war broke out. At that time the French government was requisitioning all automobiles for military service use and Colonel Colt gave his car to the government, never expecting to see it again.

* * *

On March 22 Edward P. Metcalf, former president of the defunct Atlantic National Bank of this city, through whose failure the Walpole Tire & Rubber Co., of Walpole, Massachusetts, and the Consumers' Rubber Co., of Bristol, became financially embarrassed, was sentenced by Judge Brown in the Federal District Court, to serve 5 years in the Rhode Island State Prison at Cranston, on ten counts contained in three indictments, to run concurrently, on charges of misapplication of funds of that bank. Much interest has been manifested among the stockholders of the Walpole and Consumers' companies in the affairs of the defunct bank.

Earlier in the month the Walpole Tire & Rubber Co., which has been in receivers' hands for more than a year, was sold at public auction to a committee representing the creditors, for $780,000. The Atlantic National Bank held a large amount of the Walpole stock when it went into the hands of a receiver, and it was on petition of the bank that the Walpole company was finally forced into a receivership.

THE RUBBER TRADE IN TRENTON.

By Our Regular Correspondent.

THE supply houses are much concerned over their inability to get antimony compounds—which are used largely by the tire makers—and substitutes are being employed wherever possible. The European war situation has resulted in the cutting off of all importations of this important article and there is said to be none of it procurable in Trenton. One Trenton importing firm is said to have sent a special messenger to London in an effort to obtain a supply. Just what success he had could not be learned.

Another result of the war felt by rubber mills here is the great falling off in orders for rubber carriage cloths, which in former years have found a big sale in the South. The inability of the cotton growers to realize on their crops is said to be the direct cause of this condition.

* * *

The tire people are finding that there is an ever increasing tendency to abuse the "guaranteed mileage" feature of their goods and some steps will doubtless be taken in the near future to correct existing evils. The Consolidated Rubber Co. has taken the first step in this direction by planning a publicity campaign exploiting a "non-guaranteed" tire. A number of jobbers who have been approached have given their approval to the scheme. The Consolidated people explain that the absence of a guarantee will enable them to market their tires at a lower rate and that everybody along the line from the maker to the user will ultimately benefit. The non-guaranteed tires will, with ordinary care, average as high a mileage as the guaranteed goods, it is claimed, and there will be an incentive for the user to avoid abusing them unnecessarily. Many of the claims on the makers of guaranteed tires have been manifestly unjust, but they have been taken care of rather than raise an issue which might reflect in any way upon the makers.

The scourge of the guaranteed tire maker is the legion of speeders who, relying upon the modern mechanism of their cars for quick control, speed up to within a short distance of the stopping point and then set powerful brakes to grind the very life out of the rubber. The improper adjustment of

chains forms another serious problem for the manufacturers of guaranteed goods to cope with.

* * *

The Midvale Steel & Iron Co. has purchased equipment in this city for the fitting up of a large reclaiming mill near Youngstown, Ohio. It is said the Midvale people will shortly branch out extensively in the making of special lines of rubber goods.

* * *

The Home Rubber Co. reports a satisfactory outlook for business this season. A force of painters recently brightened up the woodwork of the plant.

* * *

The opening of the Delion Tire & Rubber Co.'s plant was an auspicious event. Former Governor Stokes was to have delivered the principal address at the opening exercises, but was unable to attend. Former Senator Harry Leavitt took his place, bidding the new concern a hearty welcome to the growing family of Trenton's rubber industries. Many men prominent in the business life of Trenton and other New Jersey points were in attendance. Luncheon was served in the plant. A feature of the occasion was the making of a tire complete, with the exception of vulcanizing, in the presence of the visitors.

* * *

A local rubber manufacturer, who for the present does not wish his name mentioned, has received a large order for rubber covered smoking pipes which have heretofore been imported from Germany. The pipe has a red clay bowl which is covered with hard rubber on the outside. The mouthpiece is also of rubber. The same company is also said to be negotiating with importers for the manufacture of several other novelties formerly bought in Germany.

* * *

The Keene Shock Absorber Co. is the name of a new concern which proposes to lease to rubber companies the right to manufacture a new style rubber heel and sole. Professor George A. Keene, widely known as a writer on health topics, is at the head of the proposed company, and steps have already been taken toward the incorporation of the concern. Application has been made for a patent on Professor Keene's rubber heel. It is said the heels can be worn on any pair of shoes selected for the day. The change from one pair of shoes to another will take about one minute and the method of changing is very simple. The Keene heel differs from others in that it has a pneumatic feature which is said to be eminently practical. A number of sealed air chambers add to the elasticity of the rubber.

Professor Keene has long been experimenting with the air chamber feature, but until recently he has not been successful. Another patent applied for by him covers an arch support made of rubber and said to be greatly superior to those of metal construction.

* * *

The tire makers of the Thermoid Rubber Co. recently held a banquet and vaudeville entertainment at the Hotel Hamilton.

The Thermoid company is particularly proud of the fact that "Nassau" tires were used on the car of Resta, who won the recent Vanderbilt Cup Race. The tires used in the Vanderbilt race were the same ones which carried Resta to victory in the Grand Prix race a week before. The triumph for an American tire is all the more noteworthy when it is considered that the Grand Prix was run over roads made extremely dangerous by rains. It was necessary to use chains to prevent skidding and these subjected the tires to a terrific grinding, which, however, did not injure them materially.

A unique social event was held recently by the Pilgrim Presbyterian church in this city, at which the price of admission was a piece of some sort of rubber. A great pile of parts of tires, worn out gum shoes, etc., was left in the church vestibule.

* * *

Rubber air brake hose may make possible the saving of more than a million dollars a year for the railroad companies operating in New Jersey. This was brought out at a recent inspection of railroad equipment held in this city for the benefit of the members of the Legislature, newspaper men and others interested in the fight the railroads are making to have repealed the "full crew law." The railroads contend that with the air brake equipment their trains can be safely handled without the extra man the law now compels them to hire. The senators and assemblymen who saw the air brakes work were much impressed.

* * *

Suit for divorce has been entered in the Court of Chancery here by Mrs. Mary E. Magowan against Frank A. Magowan, formerly one of the largest rubber manufacturers in the country. Mr. Magowan was also former mayor of Trenton. The plaintiff alleges desertion and asks for alimony.

* * *

David P. Brand, of the American Rubber Co., which conducts a reclaiming plant on Perrine avenue this city, has sold out his interests in the concern to D. Piano, who formerly conducted a rubber factory at Catasaqua, Pennsylvania, which was burned some time ago. The Trenton plant with which Mr. Piano is now connected will make rubber mats, heels and soles, in addition to doing reclaiming.

THE RUBBER TRADE ON THE PACIFIC COAST.

By Our Regular Correspondent.

A BILL introduced in the State of Washington by the Roads and Bridges Committee of the House, for the protection and preservation of public highways, is causing considerable concern to the freight companies and others operating heavy motor trucks. If passed, such a measure would make it unlawful for any person to operate or cause to be operated over any public street, road or highway any vehicle which, with or without its load, should be of such weight or should have any wheel or tire so made or so equipped with spikes, cleats, lugs or other attachments or projections, as to break, crack or injure such street, road or highway, or the surface, foundation or any other part thereof; and all road supervisors and county and municipal police officers and their deputies and employes are made police officers to arrest violators. Such an enactment would stop the use of what are known as "lug" tires and also tire chains, which are considered by drivers of heavy trucks necessary for the safe operation of these machines.

* * *

The recent reduction in tire prices and the drop in gasolene prices—which were from 18 to 22 cents less than a year ago—to the present price of about 10 cents a gallon are expected to lend encouragement to the use of automobiles through the West, the operating expenses being quite an item in the cost of owning a car.

* * *

The tire distributing houses have all been getting in stocks of tires and making other necessary preparations for caring for the expected demands by eastern tourists during the spring and summer.

Charles A. Gilbert, general sales manager of the United States Tire Co. of California, has recently returned from a three weeks' eastern trip, during which he visited the home offices and factories of the United States Rubber Co. and

attended a convention at the Morgan & Wright factory of district sales managers.

Drivers of the jitney buses which are so rapidly growing in favor in this section, speak in high terms of the service given by the United States "Chain Tread" tire on these huge cars, claiming that they afford effective protection against slipping and skidding, to which cars of this size are especially liable.

Another tire that is meeting with favor in jitney service is the Savage, made by the Savage Tire Co., of San Diego, California. One company operating a line of these buses in and about Los Angeles states that this tire is now one of the most popular in the western market for this kind of service, having given more than 10,000 miles' service in some instances and being still good for further use.

An unusual record of tire mileage comes from the northern section of California, where the roads are notably rough and rocky and where a tire that lasts for 3,500 miles is considered to have given good service. The tire in question, a Goodrich, is reported by its owner to have run 17,000 miles, on a heavy car, without having been off the rim, without a puncture and "you might say with the original air still in the tire."

The Republic Rubber Co., of Youngstown, Ohio, has established a branch at Spokane, Washington, the Inter-State Rubber Co. of that city having taken the Republic line for that section. The Inter-State company will hereafter be operated and known as the Spokane branch of the Republic Rubber Co. of California, and R. N. Church has been made vice-president of the new organization. The Republic Rubber Co. of California, of which M. E. Murphy is president, has its headquarters at San Francisco, with branches at Los Angeles, Seattle and Vancouver.

The Weinstock-Nichols Co., one of the largest tire jobbing houses on this coast, has made arrangements with the Kelly-Springfield Tire Co., of Akron, for the handling of its line, both at San Francisco and at Oakland, California, where it has a branch store.

The Hardman "Sure Grip" non-skid tire, made by the Hardman Tire & Rubber Co., of Belleville, New Jersey, is being distributed on the coast by The Costello-Lang Co., of San Francisco, who are also distributors of the Falls tire, made by the Falls Rubber Co., of Cuyahoga Falls, Ohio.

Among the exhibitors at the Panama-Pacific International Exposition now being held at San Francisco, are the United States Rubber Co. of San Francisco, who have a display of rubber heels, and the Bowers Rubber Works, also of that city, who show a complete hose making plant in operation. The display includes samples of crude Pará and Ceylon smoked rubber, with warming mill and calender for rolling the rubber out in sheets, a circular loom for weaving cotton fabric over rubber tubing for ¾-inch garden hose and a flat loom for making underwriters' linen hose in sizes from 10 inches to ¾-inch. Various products manufactured by the company are also exhibited, including dredger sleeves, concentrator belts, oil hose, sheet and spiral piston packings, etc.

These exhibits will be found in the Palace of Manufactures, one of the main group of eight exhibit palaces, 475 x 552 feet in size, with a floor area of 234,000 square feet, and erected at a cost of $341,069.

RUBBER BAND KILLS A PRIZE ROOSTER.

A sign conspicuously displayed at the Poultry and Pigeon Show recently held at Madison Square Garden, New York, warned visitors against throwing rubber bands about, as "the chickens take them for worms." The posting of this sign followed the death of a valuable rooster as a result of mistaking for a worm a rubber band dropped, accidentally or otherwise, inside his cage.

RUBBER STATISTICS FOR THE UNITED STATES.

IMPORTS OF RUBBER AND MANUFACTURES OF.

ARTICLES.	January, 1915. Quantity.	January, 1915. Value.	Seven Months Ending January, 1915. Quantity.	Seven Months Ending January, 1915. Value.
India rubber, etc., and substitutes for, and manufactures of:				
Unmanufactured—				
Balata .....pounds..free	265,566	$103,236	1,728,513	$698,396
Guayule gum	507,077	136,517	2,131,694	626,784
Gutta jelutong 1,536,024		80,317	8,291,198	395,583
Gutta percha	203,301	19,136	846,710	128,896
India rubber 7,960,482		3,835,044	75,003,407	34,691,730
India rubber scrap or refuse, fit only for remanufacture.	283,255	18,710	6,847,288	449,051
Total unmanufactured.		$4,192,960	.....	$36,990,440
Manufactures of—				
Gutta percha ....dutiable	.....	$839	.....	$10,187
India rubber ..... "	.....	53,293	.....	552,884
Total manufactures of.		$54,132	.....	$563,021
Substitutes, elasticon and similar .....dutiable	.....	$2,401	.....	$22,503

IMPORTS OF CRUDE RUBBER BY COUNTRIES.

From:				
Belgium .....pounds	.....	.....	1,902,370	$950,872
France	27,097	$13,954	579,214	239,966
Germany	.....	.....	732,118	358,038
Portugal	426,264	143,023	1,798,119	538,996
United Kingdom	243,206	124,952	25,268,098	12,983,602
Central American States and British Honduras	62,526	27,540	254,805	107,447
Mexico	69,649	29,437	1,241,417	468,262
Brazil 5,226,183		2,410,676	26,691,825	10,994,561
Other South America.....	240,343	105,661	2,122,380	922,332
East Indies	515,475	232,060	12,719,997	6,135,944
Other countries 1,149,739		747,741	1,693,064	991,660
Total 7,960,482		$3,835,044	75,003,407	$34,691,730

EXPORTS OF AMERICAN RUBBER GOODS.

India rubber, manufactures of:				
Scrap and old .....pounds	140,357	$14,898	1,224,454	$127,199
Reclaimed	512,866	67,856	3,379,915	463,401
Belting, hose and packing...	.....	115,311	.....	1,095,519
Boots and shoes—				
Boots .....pairs	45,400	95,882	255,193	574,333
Shoes	475,654	628,735	1,642,953	1,753,717
Tires—				
For automobiles	.....	353,916	.....	1,908,557
All other	.....	30,499	.....	223,508
All other manufactures of...	.....	236,669	.....	1,593,110
Total	.....	$1,543,766	.....	$7,739,344

EXPORTS OF AUTOMOBILE TIRES BY COUNTRIES.

Tires for automobiles:				
Germany	.....	.....	.....	$6,090
England	.....	$165,715	.....	891,660
Canada	.....	41,317	.....	358,066
Mexico	.....	12,197	.....	60,856
Philippine Islands	.....	25,079	.....	125,161
Other countries	.....	109,608	.....	466,724
Total	.....	$353,916	.....	$1,908,557

EXPORTS OF FOREIGN MERCHANDISE.

India rubber, etc., and substitutes for, and manufactures of:				
Unmanufactured—				
Balata .....pounds..free	177,836	$71,803	658,175	$266,463
Gutta percha	.....	.....	3,460	1,488
India rubber	507,565	312,942	4,098,375	2,252,979
Total unmanufactured.		$384,745	.....	$2,520,930
Manufactures of—				
India rubber.....dutiable	.....	$1,593	.....	$5,409

STERLING GUM CO.

The balance sheet of the Sterling Gum Co., of New York, as of December 31 last, shows liabilities $127,586 in excess of assets, these being, respectively, $6,002,313 and $5,874,727. It is explained that this apparent loss is more than covered by the expense incurred in building the business and in brand values. The sales of the company in the United States and Canada for the 8 months it has been in operation are given as $744,081. The board of directors was increased at the last annual meeting to nine members and now includes Percival S. Hill, president of the American Tobacco Co., and A. L. Sylvester, president of the American Cigar Co.

The India Rubber Trade in Great Britain.

By Our Regular Correspondent.

GENERAL COMMENT.

RECENT political events culminating in the exchange of notes between America and the principal belligerents have had the effect of soothing the irritations in our trade circles, to which I made brief reference in my last letter, and rubber men are again saying only pleasant things about America. Possibly the case may be different in Berlin, but I shall not pursue the topic except to remark that, however much the general American press may have on occasions departed from professions of neutrality, the international subscribers to THE INDIA RUBBER WORLD have found nothing in its pages suggestive of bias to one side or the other engaged in the titanic struggle. The article by the editor in the January issue, entitled "What Manufacturers Want in Crude Rubber," has been read with interest on this side, and with general agreement.

Trade conditions generally remain much as they have been during the last three months, those firms not engaged on Government work reporting home trade as decidedly quiet. Deliveries in regard to Government contracts are being kept well up to time. In regard to waterproof clothing, inspection of deliveries at Pimlico is reported as being almost as stringent as in peace time, but, although there have been a few rejections, the bulk of the work done has passed satisfactorily—a matter of congratulation to the firms concerned, in these times of rush. The manufacturer's main difficulty has been in obtaining sufficient hands, especially spreaders. With regard to men joining the colors it is noticeable that the list of firms in Lancashire issued at the end of February whose men are not to enlist is considerably shorter than the original list. The new list comprises only 35 firms, against 80, and no rubber manufacturers occur in it. I don't know what is the case at Birmingham, where exemption was granted to the Dunlop company, so busily engaged in making tires for the war office.

Owing to the rise in food prices various classes of industrial workers have agitated—and in most cases successfully—for a proportionate rise in wages; that is, an increase of 20 per cent. Naturally those of the clerical staff on moderate salaries feel that they ought not to be overlooked, though their claims have by no means met with prompt recognition. The Dunlop Rubber Co., Limited, should, however, be mentioned as having increased wages and salaries. Of course firms engaged on large Government contracts are better able to do this than are those not so fortunately situated. The treasury regulation regarding the issue of new capital has caused considerable perturbation in certain rubber plantation circles, but who is not being perturbed now-a-days by some regulation or other? Although in some cases the treasury embargo has been withdrawn, this is not so with intended rubber plantation issues, on the ground that increased production of rubber is not at the moment a matter of necessity, no shortage of supply for national purposes being apprehended.

RECLAIMED RUBBER.

From more than one quarter I hear that the sales of reclaimed rubber are now more satisfactory in the matter of quantity than has been the case of late. There are of course various ups and downs in the business, brought about by the war. Russian reclaimed, which has had a considerable sale in Great Britain of late years, is now completely cut off, owing to ice, while American reclaimed destined for Russia via England was too late to get through owing to delay in obtaining the necessary permits. Since Germany made Swedish wood cargoes contraband, Sweden has retaliated by making rubber contraband and entirely prohibiting its export. This has made it easy for British reclaimers to send their product to Sweden, but at the same time it has cut off the supplies of waste rubber which some of our reclaimers have been in the regular habit of getting from Sweden.

Naturally, British and American products have, for the time being at any rate, taken the place of the Russian, thus leading to an accession of business for the former; and in this friendly competition high freights have been against the Americans. An increasing amount has come to England in the last few years from a large French mill, but very little from Germany, where reclaiming is carried on at the rubber factories for home use. The aftermath of the war must assuredly bring to hand large stocks of old tires, judging by the number of new ones that have been made during the last seven months, but so far I have not heard of any bulk of old tires from this source coming on the waste market. Of course the modern band tire stock is not in particular favor with reclaimers, who much prefer pneumatic tires. Not only is there about double the amount of mineral in the band tires, but in order to cure the vulcanite layer they have a much longer vulcanization, with the result that they produce a good deal of fine material when put through the rolls. Of course band tires are by no means exclusively used in the war area, large numbers of pneumatics having also been sent out. Even if these do not in the bulk come back direct to England but go into stock in France the effect will be much the same with regard to prices ruling in the rubber scrap market.

FIRES.

Two rather serious fires in the spreading departments of rubber works occurred in February. The first was at the Aston works of the Dunlop Rubber Co., Limited, Birmingham, a 4-story building being involved and much machinery seriously damaged. The second was at the works of the Premier Waterproof & Rubber Co., Limited, Manchester. Here the damage done was even more serious, necessitating total suspension of the spreading department, which was at the time busily engaged on Government work. Fortunately the warehouses adjoining the gutted premises were unaffected.

THE INDIA RUBBER MANUFACTURERS' ASSOCIATION.

At the annual meeting held February 3, in Manchester, Mr. James Tinto in the chair, the following officers were elected for the current year: Chairman, James T. Goudie; vice-chairman, Peter Bate (Castle Rubber Co., Limited, Warrington); committee, P. A. Birley (Chas. Macintosh & Co., Limited); J. H. C. Brooking (St. Helens Cable & Rubber Co., Limited, Warrington); R. Eccles (F. Reddaway & Co., Limited); Viscount Grimston (St. Albans Rubber Co.); W. M. Henderson (Ancoats Vale Rubber Co., Limited); David W. Moseley (D. Moseley & Sons, Limited); F. T. Swanborough (Avon Rubber Co., Limited), and James Tinto (Irwell & Eastern Rubber Co., Limited). Mr. R. Eccles took up the duties of treasurer in succession to Mr. W. M. Henderson. The new chairman, who is managing director of the Leyland & Birmingham Rubber Co., Limited, will have his work cut out if he is to emulate the zeal and attain the success of Mr. Tinto, who has held the position for the last two years. A mere glance at the committee shows its strength, but as there may be some to whom it does not appear quite representative of the British rubber trade, I may say that from the commencement of the association certain important firms have always held aloof, their abstention including the North British Rubber Co., Limited; Wm. Warne & Co., Limited, and the India Rubber, Gutta Percha & Telegraph Works Co., Limited, Silvertown.

PAVEA SYNTHETIC RUBBER.

Though possibly Messrs. Müller & Co., the sole selling agents, as also the agriculturists of Tipperary, may have given up this commodity as a bad job, I understand that Mr. Roberts and his chemist are still working at this problem, on the principle that what has been done once can be done again. This of course raises the point as to whether it has been done once. Mr. Russell, the patentee, is still working with Mr. Roberts, while Mr. Metcalfe has dissociated himself from the enterprise and is now making reclaimed rubber at his Gloucestershire works.

RUBBER CHEMICALS.

The price lists of rubber chemicals published in recent numbers of The India Rubber World, though by no means a new feature in American trade journalism, are somewhat of a novelty to British eyes, and those dealers in chemicals who keep their doings as quiet as possible are not over-anxious for the novelty to be emulated on this side. Of course, compared with thirty years ago, there are today very few specifics or chemicals sold under fancy names on the rubber chemical list—large profits on chemicals being a decided exception rather than the rule now-a-days.

The reference to the possible shortage in barytes in America does not seem well grounded, though certainly in regard to this article England must certainly hold a stronger position than any other country, her output having increased while other countries' outputs have declined. A few months ago I gave some statistics, which I may perhaps now be permitted to supplement by more recent figures. The United States output, which was 50,000 tons in 1909, fell to 34,877 tons in 1911, and to 34,000 tons in 1912. On the other hand, Great Britain's output has shown an increase from 45,000 tons in 1912 to 50,000 tons in 1913. What effect the war has had upon the United States production I do not know, but it has certainly increased the British output and has caused activity at Canadian deposits. Continental figures remain much as they have been for years, except that the Belgian output rose considerably in 1912. As the total production of Germany—practically all from Bavaria—was 27,000 tons in 1912, it seems obvious that the large business done by Germany in the various barium compounds depends to some extent on imported raw material obtained from France and Belgium.

Passing on from this topic, the fact that sulphur and golden sulphide of antimony is now absolute contraband means that our rubber chemical dealers are put to the trouble of applying for special permits in order to do business out of the Kingdom. Looking generally at the list of American prices it is noticeable that the high price of flowers of sulphur is much the same as here, despite home production in America.

THE WORLD'S RUBBER PRODUCTION FOR 1915.

According to an acknowledged authority on the rubber market, the world's production of the commodity during the present year is not likely to exceed that of 1914. Last year's figures were approximately as follows:

Plantation, 71,977 tons; Brazil, 37,000 tons; rest, 12,000 tons; total, 120,977 tons. Percentage of increase 11.5 per cent.

For 1915 the estimate in question is:

Plantation, 85,000 tons; Brazil, 30,000 tons; rest, 5,000 tons; total 120,000 tons. Percentage of decrease, .08 per cent.

There are, however, so many elements of uncertainty in connection with the production of crude rubber that an estimate, however carefully compiled, may well prove to be wide of the mark by as much as 15,000 tons. For example, in view of the enormous area planted with rubber in the Middle East during 1910, and therefore now coming into bearing, there is bound to be a very big increase in the plantation outturn this year. The above authority gives the surplus as rather more than 13,000 tons, but it may quite easily run into 20,000 tons or more.

Then again, there is the unknown factor, Brazil. Notwithstanding an extraordinarily fluctuating market South America during the past eight years has been a wonderfully uniform producer. Neither the high prices of the boom period nor the subsequent slump seems to have had much influence upon the outturn of Brazil. For 1910, when prices were at the high-water mark, the total production of Pará rubber was 40,800 tons, and in 1913, when the price pendulum swung to the opposite extreme, the total crop was 39,370 tons. Brazil is the most disconcerting and illogical factor in the crude rubber position, and it is just as likely to produce more, in a time of adverse market conditions, as less. One would suppose that if anything were calculated to upset the Amazonian industry it is the present European conflagration. It might reduce the production by as much as 50 per cent, but the odds are that it will not. The above estimate indicates a falling off of 7,000 tons from this source, but while the crop is just as likely to be equal to that of 1914, nobody would be surprised if it were 10,000 tons less.

As to the production of the rest of the world, there is bound to be a substantial reduction, and that is all one can say about it. However, it may be generally conceded that although individual items in the foregoing estimate may prove wide of the mark, the total, much on a par with that of 1914, is most in accordance with the probabilities.

DISCLOSED PERCENTAGES IN RUBBER GOODS.

Touching the question of plantation *versus* Pará rubber, a suggestion of considerable interest to the trade has recently been broached. It is pointed out that the user of rubber goods has no guarantee whatever as to the quantity of crude rubber, if any, contained in the articles he purchases. In connection with many other manufactures, definite guarantees are given, and it is contended, with some show of reason, that in these days of reclaim, rubber substitutes and what not, the purchaser of rubber goods is entitled to know a little more about the article he is buying. In view of the British public's large financial interest in the plantation industry, there is no doubt that, so far as this country is concerned, rubber goods endorsed with the legend "Made from pure plantation rubber," would command a better sale than similar goods unmarked. Assuming also that up to a certain point the more virgin rubber used in its manufacture the better the article, it is urged that manufacturers might go further and give the actual percentage of rubber contained in the goods. From the standpoint of plantation rubber producers, at least, the suggestion has much to recommend it. When prices of fine hard and plantation are on a par the user of the former is in reality paying approximately 25 per cent. more for his raw material, making allowance for loss in washing, than the buyer of plantation rubber. It is obvious, therefore, that the former could not compete with the latter on equal terms if the respective percentages of raw rubber in the manufactured goods were disclosed. I am convinced that there is a good deal in this suggestion, and that the trader adopting it would ultimately be well repaid for his enterprise. In the first instance, however, it would be necessary to educate the public by judicious advertising, explaining the relationship between the per cent. of pure rubber used and the quality of the goods.

PLANTATION AUCTION SALES.

Prior to the war plantation rubber had always been sold by public auction. When hostilities developed this system broke down and importers have had to resort to sale by private negotiation. This method has proved so satisfactory that it is now freely stated that the public auctions will never be resumed. It must be said, however, that market conditions are by no means normal, and consequently the comparison of the two systems is scarcely permissible. Owing to the congested state of the London docks, an unconscionable time is taken to unload rubber for the market, resulting in much greater delays than usual in receipt of supplies. It is therefore a question whether sell-

ing by private treaty would prove adequate if the rubber were being placed on the market with normal speed, though there is much to be said in favor of the present practice, especially from the standpoint of importers.

THE RUBBER TRADE ASSOCIATION OF LONDON.

The annual general meeting of the Rubber Trade Association of London was held on February 17, Mr. Edward Berg in the chair.

The chairman said that the members should felicitate themselves that the association had been organized and put on its feet in time of peace and had thus been able to be of great help to the trade in a period when nearly everything was disorganized. The committee had been called upon daily to solve most difficult problems, and it had never shirked. The members of the association, with practical unanimity, had supported the decisions of the committee, and by reason of this confidence trade had been carried on without interruption, while the Stock Exchange and other organizations had remained paralyzed for months.

Thanks were due to the Rubber Growers' Association and to the sub-committee (Messrs. Devitt, Meyer, Stevenson and Bower) for their valuable assistance, especially in the negotiations with the government, which had been so successful in relaxing the severity of the embargo on rubber shipments to the United States. The government had recognized the loyalty of the rubber trade in general with regard to trading with the enemy.

Out of 85 arbitrations during the year, 43 had been on questions of quality and more than half the remainder for fixing prices of admitted defaults. There had been but two appeals. The Qualities Committee had examined 7,872 samples, and 1,037 standard certificates had been delivered.

Mr. Andrew Devitt was appointed chairman, Arthur Meyer, vice-chairman and J. Dudley Johnston, treasurer, for the current year.

BRITISH BIDS FOR HOME AND FOREIGN TRADE.

Authorization has been given by the Secretary of State for the Colonies for the formation of a Technical Information Bureau at the Imperial Institute, London. This has been brought about by the steadily increasing number of inquiries received at the institute relating to such subjects as the sources of raw materials supplies, the methods of utilizing new products and processes and machinery for industrial purposes. This bureau is expected to play an important part in the development in Great Britain and British Colonies of industries whose products have heretofore been imported from Austria and Germany.

The Board of Trade, London, has prepared a series of memoranda, giving information with regard to possible developments in certain important trades, which is furnished to British firms on application to the Commercial Industries branch of the Board. This includes information on rubber tires for automobiles and other vehicles, and other rubber articles. Samples of Austrian and German goods, collected in all the British Colonies and from most of the so-called neutral countries, are soon to be exhibited in London by the Board of Trade; and a fair, to be known as "The British Industries Fair," is to be held in that city from May 10 to 21, at the Royal Agricultural Hall, for the exhibition of articles of home production. Only articles of British production will be displayed, and admission will be by invitation, restricted to *bona fide* buyers for home and over-sea markets.

The Henry Pneumatic Tyre Co., Limited, is a new company, with a capital stock of £50,000, registered by T. H. Goodwin, 10, Basinghall street, London, E. C.

MR. STEVENSON RETURNS TO LONDON.

E. Stevenson, managing director of Aldens' Successors, Limited, of London, who arrived in New York in the early part of February, returned to London on the "Cameronia" March 6. While Mr. Stevenson came to this country on important business for his company, additional interest was lent to his visit from the fact that he was one of the members of the committee appointed by the London Rubber Trade Association to co-operate with the committee appointed by the Rubber Club of America in lifting the British embargo on crude rubber exports. Mr. Stevenson will be able to give full assurance to the British authorities that the engagements which the American manufacturers have entered into are being thoroughly and faithfully carried out.

MR. MANDERS RAISES A LARGE FUND FOR THE BELGIANS.

Mr. A. Staines Manders, of London, who, with Miss D. Fulton, his secretary, has organized the various international rubber expositions held in London and the one of two years ago in New York, has shown his organizing abilities in assisting the Belgians. He, with Miss Fulton's assistance, organized what was known as Belgian Flag Day, with the object of obtaining a nucleus of a Foundation Fund for the Belgian orphans. In sixteen days or, more properly, in sixteen days and nights—as Mr. Manders and Miss Fulton kept at their work almost constantly—he succeeded in collecting the large sum of £17,000, to which considerable additions will be made later.

A RUBBER CHART FOR THE YEARS 1910 TO 1914.

Edmund Schluter & Co., of London, have just issued a chart showing the fluctuations of South American and plantation rubbers for the five years from January, 1910, to December, 1914. This is a wall chart 30 inches long by 16 inches wide and finished with a wooden strip top and bottom so as to keep its shape. It shows at a glance the market activities of the various kinds of rubber during the period covered. As the fluctuations of upriver fine, island fine, negro head and crepe plantation are all printed in different colors, while caucho ball is printed in a broken line, the chart shows at once the position of each sort of rubber for every week during the year. Singularly, the highest price of upriver fine—12*s.* 4*d.* [$3]—occurred in the early part of 1910, or, to be more specific, in the third week of April, while the lowest price for that grade—2*s.* 6*d.* [$0.608]—occurred almost at the end of the five-year period, or in the third week of December, 1914.

H. Welsh-Lee has become advertising manager of the Dunlop Rubber Co., Limited, of Birmingham, England.

An Italian officer, Captain Biffi, recently put the rubberized fabric of his military dirigible balloon to a very severe test by ascending to a height of more than 10,763 feet. Returning to earth after a flight of nearly 6 hours the dirigible was in perfect condition, with plenty of gas and ballast left for a still longer flight.

Imports of manufactured rubber goods into Persia for the fiscal year ending March 21, 1913, included rubber overshoes to the value of $107,192 and other rubber goods valued at $18,219—all from Russia.

In 1913 crude rubber to the amount of 12,995 pounds was exported from British West Africa, as compared with 4,335 pounds exported in 1912, showing an increase of 8,660 pounds.

The British Gold Coast Colony exported, in 1913, 1,317,369 pounds of rubber, against 1,990,669 pounds exported by this colony in 1912, showing a decrease of 673,300 pounds, which can be attributed to the low run of prices in the European market.

From Sierra Leone 10 tons of raw rubber were exported in 1913. In 1912 there were no exports of rubber.

JAPAN'S COMMERCE IN CRUDE RUBBER AND RUBBER GOODS.

By Our Regular Correspondent.

OFFICIAL statistics of Japan's commerce in crude rubber and manufactured rubber goods for 1914 show a slight decrease in imports of both these commodities, in value and quantity, with an increase of more than 100 per cent. in exports of rubber manufactures.

The influence of the war has been felt, due to the interruption, in August, of rubber imports as well as all foreign money communications. During September and October small quantities of rubber, which was badly needed by the manufacturers, were imported from Shanghai and Hongkong, where many ships were detained. The embargo on crude rubber exports from British colonies seriously affected the Japanese trade and imports during November reached their lowest point, increasing in December to 145,273 pounds, valued at $59,815. It is estimated that had it not been for the war crude rubber imports would have considerably exceeded those of 1913, corresponding with the decrease in imports of rubber manufactures. The following table shows crude rubber imports of 1914, with their sources, in comparison with those of 1913:

IMPORTS OF CRUDE RUBBER INTO JAPAN.

	1913.		1914.	
From—	Pounds.	Value.	Pounds.	Value.
British India	340,343	$239,281	406,676	$223,637
Straits Settlements	1,657,265	885,602	1,646,556	678,730
Netherlands	13,928	8,908	13,034	1,678
Great Britain	440,802	408,865	224,500	159,312
United States	139,624	100,112	11,914	8,166
Other countries	89,981	83,154	2,582	1,786
Total	2,681,943	$1,725,922	2,305,262	$1,073,319

Imports of manufactured rubber goods decreased about 40 per cent., a decrease attributed to the fact that Japanese manufacturers are now producing rubber goods recognized by the people of this country as equal to those of foreign manufacture—with the exception of some special lines now in an experimental stage. In addition to the imports of manufactured rubber goods for the years 1913 and 1914 shown below, automobiles and parts (including tires) were imported to the value of $249,211 in 1914, against $555,023 in 1913, and bicycles and parts (exclusive of tires) to the value of $517,548 in 1914 against $1,065,141 in 1913.

IMPORTS OF RUBBER MANUFACTURES INTO JAPAN.

	1913.		1914.	
	Pounds.	Value.	Pounds.	Value.
Reclaimed rubber and unvulcanized rubber	452,801	$92,675	285,269	$43,368
Dental rubber	20,356	39,423	20,464	39,142
Soft—				
Rods and cords	155,405	44,606	105,193	44,264
Plates and sheets	90,606	29,106	88,856	25,195
Tubes	100,424	41,483	73,460	30,525
Belts and belting for machinery	54,678	23,771	39,432	17,677
Thread, strips, bands, rings and washers	93,558	70,607	57,473	52,924
Other soft goods	63,741	42,205	30,105	21,774
Hard—				
Lumps, bars or rods, plates and sheets	41,077	27,675	36,395	23,544
Other hard goods	14,754	10,977	15,080	10,541
Bicycle tires	428,980	519,498	182,226	215,950
Insulated electric wires: Armored with metals—				
Submarine telegraphic and telephonic cables	.....	25,701	.....	463,245
Other armored cables	8,848,593	930,481	1,760,118	187,113
Flexible cords	40,677	12,378	14,330	4,730
Other cords	187,138	62,700	99,969	29,998
Rubber boots (pairs)	13,067	25,707	5,699	9,576
Overshoes (pairs)	35,835	17,737	25,343	12,488
Woven beltings for machinery, and hose	605,676	280,392	389,370	183,625
Waterproof tissue	29,590	22,090	19,874	14,933
Elastic webbing, cords and braids	.....	49,123	.....	32,178
Insulating tapes	185,009	280,392	56,532	21,267
Total	.....	$2,648,727	.....	$1,489,057

Although the disturbed financial conditions due to the war affected to some extent the home consumption of rubber goods, such demand as existed was supplied largely with the product of the Japanese factories, taking the place of European goods, whose export has been prohibited. This prohibition of European rubber exports led also to a wider introduction of Japanese rubber manufactures into China and other parts of Asia, the trade with China showing a very gratifying increase in certain lines.

The following are the figures covering exports of rubber goods:

EXPORTS OF JAPANESE RUBBER MANUFACTURES.

	1913.		1914.	
	Pounds.	Value.	Pounds.	Value.
Insulated electric wire	556,041	$125,699	995,999	$196,928
Jinrikisha rubber tires	.....	205,160	882,792	543,135
Total	.....	$330,859	.....	$740,063

There were also exported in 1914 jinrikishas and parts, exclusive of tires, to the value of $204,713, against similar exports in 1913 to the value of $152,981.

THE CONSUMPTION OF COTTON IN JAPAN.

Japan obtains most of her raw cotton from India. Imports of this material from the United States showed a constant increase until 1913, rising from $14,361,734 in 1907 to $32,305,577 in 1912. Cotton imports into Japan from the United States fell in 1913 to $32,110,172, showing a decrease of $195,405 as compared with the previous year. At the same time cotton imports from India, Egypt and other countries showed an increase for 1913. In that year Japan took almost half of India's cotton production, or quantities valued at $71,519,586.

BOTTLE RINGS AND THE WAR.

Among the first rubber articles in Germany to be affected by war were the small rubber rings used in providing air-tight stoppers for beer, soda and mineral water bottles. As soon as it was learned that the government intended to supervise and limit the use of crude rubber, brewers, wholesale manufacturers and bottlers of beer and Selters were active in purchasing all the rubber bottle rings they could obtain, with the result that such rings were soon selling at very high prices and a little later could not be obtained at any price.

As yet no substitute for rubber rings has been discovered. Paper, pulp, tinfoil and other rings and stoppers have been resorted to, but these can only be used once and do not take the place of the reliable rubber rings and discs. Black and dark gray bottle rings, made of rubber substitutes, are being used through necessity. These have not the quality of durability, but to a certain extent they take the place of rubber. It is questionable whether or not these rubber substitute rings will stand contact with certain mineral waters. However, "war rings" will have to be used until peace is established, and then the Germans will go back to the little red rubber bottle rings formerly so generally in use.

RUBBERIZED HEAD PROTECTORS.

A German inventor has recently patented a head protector made in one piece, of rubberized material, which thoroughly protects the entire head of the wearer. This protector can be worn under a helmet, such as aviators wear, or any other style of headgear.

Another head protector, of German invention, designed especially for military use, is quite simple. It is cut from a piece of rubberized fabric, is triangular in shape and forms two lappets. A running string is attached to the upper edge of the protector and the wearer uses this string to fasten the gear to the outside of his helmet. He then folds the two lappets, right and left, under his chin and fastens them in a knot at the back of his neck.

Replete with information for rubber manufacturers.—Mr. Pearson's "Crude Rubber and Compounding Ingredients."

RUBBER ARTICLES NEEDED IN WAR.

European soldiers in the field are happy, according to a contributor to a German paper, when they can gain possession of either rubber bath tubs or rubber wash basins. In fact, the wash basins are even more popular than the tubs, for they are lighter, take up less room, and soldiers at the front find more chance of using them than they do of using tubs. The men appreciate the facility with which these soft rubber articles can be rolled or folded into a light, compact package.

Rubber eating utensils would also be welcomed by the men at the front if they were so vulcanized as to avoid communicating the disagreeable taste of rubber to their food; but it has not been found possible as yet to prevent such utensils from cracking in use.

Rubber and celluloid collars and cuffs have become very popular among European soldiers on account of their lasting qualities and especially the facility with which they can be cleaned. It is not a very easy matter to get clean linen in the trenches.

Another demand for rubber, created by the war, is due to the extensive use of canned and preserved food at the front. Great quantities of rubber jar rings and washers are needed in the proper packing of these provisions.

SOME STATISTICS ON THE LARGER PLANTATION COMPANIES.

The Singapore share circular issued by Fraser & Co., of Singapore, which was discontinued for some time owing to the very small business done in plantation shares, has recently resumed publication. Its latest number gives some interesting statistics regarding plantations whose shares are traded in in the Singapore market. The table below gives some of these statistics relating to the larger companies, only those sterling companies being taken whose paid in capital equals or exceeds $200,000 and only those dollar companies being taken whose paid in capital equals or exceeds $500,000.

COMPANIES CAPITALIZED IN POUNDS STERLING.

Name of Company	Date of formation	Capital Paid Up. (In Pounds Sterling)	No. of Shares Issued	Rubber Production for 1914 in Pounds
Anglo Java & Rubber Produce Co., Limited	1910	£400,000	400,000	.....
Bukit Sembawang Rubber Co., Limitied	1910	314,955	3,149,550	305,161
Chersonese (F. M. S.) Estates, Limited	1909	224,460	2,244,600	537,465
Duff Development Co., Limited	1903	492,470	284,890	.....
Highlands & Lowlands Para Rubber Co., Limited	1906	308,508	308,508	1,132,583
Kuala Lumpur Rubber Co., Limited.	1906	210,000	210,000	1,122,974
Lanadron Rubber Estates, Limited.	1907	295,000	270,000	1,241,508
Lumut Rubber Estates, Limited	1909	200,000	200,000	.....
Malacca Rubber Plantations, Limited	1906	328,964	328,964	3,341,175
Merlimau Rubber Estates, Limited.	1909	209,965	2,099,650	821,600
Mount Austin (Johore) Rubber Estates, Limited	1910	450,000	450,000	.....
Nordanal (Johore) Rubber Estates, Limited	1912	280,000	280,000	576,373
Rubber Plantations Investment Trust Limited	1909	725,000	1,400,000	.....
Straits Settlements (Bertam) Rubber Co., Limited	1906	200,000	2,000,000	2,178,267
United Serdang (Sumatra) Rubber Plantations, Limited	1907	226,423	2,264,230	2,091,171

COMPANIES CAPITALIZED IN DOLLARS.

Name of Company	Date of formation	Capital Paid Up. (In Dollars)	No. of Shares Issued	Rubber Production for 1914 in Pounds
Ayer Panas Rubber Estates, Limited	1909	$750,000	150,000	245,312
Bukit Timah Rubber Estates, Limited	1910	500,000	50,000	162,739
Changkat Serdang Estates, Limited.	1910	700,000	70,000	122,704
Malakoff Rubber Co., Limited	1910	1,000,000	500,000	379,800
New Serendah Rubber Co., Limited.	1910	600,000	300,000	118,846
Pulau Bulang Rubber & Produce Co., Limited	1910	2,405,000	228,000	.....
Tapah Rubber Estates, Limited	1912	530,000	53,000	202,776

Diploma Awarded Mr. Pearson at the Batavia Congress.

The illustration above is a photographic reproduction of a diploma awarded at the International Rubber Congress, held in Batavia last October, to Mr. Henry C. Pearson for his exhibit of specimens of wild rubber and rubber substitutes.

BATAVIA A RUBBER MARKET.

There is at present a strong sentiment in Batavia in favor of the creation of a rubber market there which should sell crude rubber to the consumers direct, doing away with intermediaries. An important meeting, called to consider this subject, was held recently in Batavia, and the opinion was expressed that, as a result of the war, circumstances were at present very favorable to the establishment of such a market. A committee was appointed to draw up rules and regulations concerning the questions of contracts, brokerage, etc. The work of this committee is subject to the approval of a meeting that will be held when the opening of a rubber market in Batavia becomes a definite fact. Sales would be effected on the Amsterdam system. Planters believe that better prices could be obtained by selling their rubber in Java. This movement is supported by the Dutch government.

In 1914 the total rubber production of the Belgian-Javanese Rubber Plantation Co. amounted to 305,750 pounds. During the same year 26,588 pounds of crude rubber was produced by the

Some Rubber Planting Notes.

CEYLON VIEWS ON RUBBER.

An official report by the Ceylon Commissioner to the Rubber Exhibition, just published, contains more that is of live interest than is usually met with in such reports. The following reference to crêpe seems worth quoting. "In the Malay stand, thin crêpe was the main form in which this grade was shown, while in ours, blanket crêpe largely predominated. This fact is worth the attention of Ceylon planters. If milling is detrimental to the nerve of rubber, thin crêpe, which is not milled so much as blanket crêpe, should be the more desirable form in which to prepare this grade. Few had a good word to say for crêpe, and of those who were there, few would have been found to recommend equipping new factories with crêping machinery; yet it commands as good a market as smoked sheet, making allowance for ups and downs. It is clear, pure and dry, and manufacturers like it for certain classes of goods not requiring special qualities of nerve. I believe, however, that we shall find—say in the course of the next decade—a diminution in the proportion of crêpe turned out, as a result of the growing opinion that tearing it about on the plantations between rollers could not possibly improve the quality of the rubber, but, on the contrary, injures it, and that the only thing to be said for crêpe is that it looks nice and is in a convenient form for handling. Crêping destroys the nerve of rubber and reduces the strength, and one well-known manufacturing authority expressed the belief that it was at the root of complaints against plantation rubber."

PLANTATION AND HARD FINE.

The Ceylon Commissioner also states that he gave a good deal of attention to the question of the relative merits of plantation and hard fine Pará, and what struck him more than anything else was the stolid indifference of manufacturers to academic arguments and tests conducted by those who were not themselves manufacturers. Indeed, the disregard of the average manufacturer extended further than this, and included his brother manufacturers who differed from him. Learned discussions might be proceeding in the conference room upstairs, but he would sit serenely at his stand exhibiting no interest in them whatever. The lesson seems to be that it is futile to try and prove the manufacturer wrong by laboratory tests, to quote statistics tending to show the superiority of plantation over hard fine. A year or more ago tire manufacturers were timid about acknowledging the use of any plantation, because even producers did not seem to be very fond of their product when it came to buying tires for their own cars. Then one firm, endowed perhaps with clearer vision, boldly threw off the mask, and now all are calling the world to witness that their tires are made almost entirely from plantation rubber. Moreover, such tires have become not only popular but fashionable.

GUARDING TREES AGAINST DISEASE.

Bark rot, a disease formerly very common in some rubber plantations in Ceylon during the Northeast monsoon, can be stopped by washing the tapping surface affected with a 20 per cent. solution of Carbolineum Plantarium.

It has been noted that in plantations where cocoa, jak or *ficus* stumps have been left after thinning out operations, root disease has affected neighboring rubber trees. Rubber stumps left in the same manner do not appear to spread disease, but as the disease is brought about by fungi, and experts believe it a matter of pure chance whether those fungi are injurious or not, it is preferable to do away with all stumps.

WAR AND CEYLON RUBBER PLANTATIONS.

When the great European war broke out the British male population of Ceylon was estimated at about 4,110, of which about 2,245 were men of military age, most of them holding responsible positions. Fully 70 per cent. of these men have joined the colors and are now serving their country in one way or another. Some, belonging to different volunteer regiments, were sent to the front, while others have been organized to take the place of the Royal Garrison Artillery in guarding the colony. The result of this is that the European staff on the plantations has been very seriously depleted, and the matter is of great concern to rubber estate agents on account of the difficulty of controlling native labor in the absence of sufficient European supervision. The planters are all patriotic and loyal, but they believe that, owing to the favorable turn the war has taken for the Allies, further efforts should not be made to raise recruits among the plantation staffs and they are protesting against any press campaign in favor of continued enlistments.

STRAITS SETTLEMENTS RUBBER EXPORTS.

An official cablegram received by the Malay States Information Agency from the Colonial Secretary, Singapore, states that the export of plantation rubber during the month of January amounted to 2,576 tons, as compared with 2,334 tons in December last and 1,181 tons in the corresponding month last year.

February exports amounted to 2741 tons, as against 1,703 in the corresponding month last year. The following table gives the comparison, month by month, for three years:

	1913.	1914.	1915.
January .....*tons*	784	1,181	2,576
February	743	1,703	2,741
Total	1,527	2,884	5,317

These figures include transhipments of rubber from various places in the neighborhood of the Straits Settlements, such as Borneo, Java, Sumatra and the non-Federated Malay States, as well as rubber actually exported from the colony, but do not include rubber exports from the Federated Malay States.

FEDERATED MALAY STATES RUBBER EXPORTS.

An official cablegram from Kuala Lumpur states that the export of rubber from the Federated Malay States in the month of February amounted to 3,411 tons, as compared with 3,473 tons in January and 2,364 tons in the corresponding month last year. The following are the comparative statistics for three years:

	1913.	1914.	1915.
January .....*tons*	2,131	2,542	3,473
February	1,757	2,364	3,411
Total	3,888	4,906	6,884

Singapore United Rubber Plantations, Limited, produced 330,000 pounds of rubber in 1914.

Terbrau Rubber Estates, Limited, report a crop of 334,440 pounds for 1914, for which an average price of *2s. 2½d.* (53.72 cents) was secured.

Kuala Lumpur Rubber Co., Limited, reports a yield of 619 pounds per acre and 6.22 pounds per tree.

Bukit Kajang Rubber Estates, Limited, report an increased production and a 15 per cent. dividend.

Rubber plantations on the Island of Singapore cover 20,000 acres. In the Settlement of Malacca about 80,000 acres are planted in rubber. There are 32 registered plantation companies in this settlement.

TRADE OPPORTUNITIES IN DUTCH GUIANA.

By Our Regular Correspondent.

IT is now nine months since the European conflict turned the world upside down and scattered want and misery in almost every corner of the civilized world.

Dutch Guiana during this period has had a time unprecedented in her history, and today her position, financially, is practically ruined. Her once flourishing balata industry has ceased to be and the planters are all at their wits end to know how to finance their enterprises. Cocoa, coffee, bananas, rubber and other minor products are overflooding the local market, but there is no money to be had for daily necessities, let alone for the purchase of produce to keep pending peace negotiations; and this makes it all the more imperative for the people of Surinam to encourage United States enterprise and United States trade.

Much has been said in the public press recently concerning the possibility of developing our commerce with the United States. It is evident that the United States manufacturers and others can only pay for the goods they import from this colony by selling their own products. Any country is likely to buy most of its goods in the same market in which it sells its products. Any buyer will make better terms with a seller who is willing to take out his credits in trade. The main products of this country are those which the United States use largely, namely, coffee, cocoa, rubber, balata, bananas, gold, timber, tonca beans, oils and gums, bird skins, feathers, etc. With proper cultivation of markets, Dutch Guiana can sell enough of its products in the United States to establish sufficient credit to secure large quantities of American-made goods. Another difficulty—but one which can be overcome—has been the absence of adequate banking facilities. The National City Bank of New York has already established branches in Rio de Janeiro and Buenos Aires, and doubtless others will follow soon. Surinam is in need of such an institution, and would give it a hearty welcome.

The authorities in Holland have communicated with the Government to show consideration to balata concerns and to extend time for paying retribution on balata not yet exported. This has had the result that most of the balata lying around in the bush has been brought into town, and the total production for 1914 has therefore risen to 1,018,818 kilograms. Will the United States dealers make a bid for our staple industry—balata? We are certain no reasonable offer will be refused.

The weather at the time of writing is perfect for balata gathering—if it were possible—but, as conditions won't permit, the trees have to remain as ornamental tributes to the past and gather strength in the hope of future operations.

The rubber plantations, or, more correctly, the plantations on which rubber trees grow, are in perfect health and flourishing; very little latex gathering has taken place for the year and the condition of the 7- and 8-year trees could not be better in any part of the world. It is really surprising to see the growth of some trees after an absence of twelve months. The healthy condition of the trees and their marvelous development prove their adaptability to the soil and climate of Dutch Guiana. If the editor of THE INDIA RUBBER WORLD were to see trees on places he visited during his tour of the colony some years back, he would, I am certain, be pleased. I recall his remark at the time, that the soil of Dutch Guiana was amply suited to rubber growing and as good as any he had seen in the Far East. That was five years ago.

Referring again to the fostering of trade between this colony and the United States, and the method by which this can be accomplished, a salesman to succeed in Surinam must know the customs of the country, and must conform to those customs. The too assertive drummer will not get results in Dutch Guiana, where business is conducted at a slow pace, with rather formal courtesy and along lines which seem to us stilted and old fashioned. Traveling expenses of representatives are reasonable, from $2 to $5 per day, and that includes almost everything. The handling of foreign orders by firms in the United States is often highly unsatisfactory to customers. Orders are filled by clerks who know nothing of even the geography of the country from which the orders come, and the goods are often packed, consigned and routed in a way which is greatly to the disadvantage of the customer, sometimes even in disregard of explicit instructions as to the method to follow. With increasing community of interest our trade relations with the United States must grow, and there can be no doubt as to the large possibilities of the future.

RUBBER IN DOMINICA.

The Imperial Institute, of London, recently submitted its report to the Curator of the Botanic Gardens, Dominica, on a number of samples of rubber sent from that British West Indian island for exhibition at the rubber show, held in London last summer. This lot included three samples of Pará and one of *Funtumia* rubber. The first two samples of Pará rubber—all of which were supplied in the form of thin biscuits—were described as rather soft and deficient in tenacity, the physical properties of sample No. 3 (smoked) being a little better, but the rubber still rather weak. These three samples are stated to be "very satisfactory in chemical composition, containing from 63.4 to 94.2 per cent. of caoutchouc. In physical properties, however, the rubber is not good, being rather soft and weak, and in this respect specimens are a little inferior to the previous samples of Pará rubber from Dominica examined at the Imperial Institute (see Imperial reports dated February 10, 1909, and February 15, 1912)." The London commercial values placed on this rubber, at prices ruling at the time of making the report, were: No. 1, 2*s.* 3*d.*@2*s.* 4*d.* [54.73@56.76 cents] per pound; No. 2, 2*s.* 0*d.*@2*s.* 4*d.* [48.65@56.76 cents] per pound; No. 3, 2*s.* 3*d.*@2*s.* 7*d.* [54.73@62.84 cents] per pound.

On the sample of *Funtumia* rubber the report reads as follows: "No. 4, Lagos rubber. Thin rough biscuits of light brown rubber, clean and in good condition. The physical properties of the rubber were excellent, and similar rubber would always be readily salable." Its commercial value in London was quoted at about 2*s.* [48.65 cents] per pound.

The results of examination were as follows:

	Sample No. 1.	Sample No. 2.	Sample No. 3.	Sample No. 4.
Loss on washing (moisture and impurities) .....*per cent.*	0.3	0.2	0.4	1.2
Caoutchouc	93.5	94.2	93.4	84.6
Resin	3.5	3.3	4.4	8.8
Proteid	2.7	2.2	2.0	6.4
Ash	0.3	0.3	0.2	0.2

By a presidential decree dated November 30 last, Guatemala continued for another six months the suspension of export duty of a cent and a half (American gold) per pound on crude rubber, ordered by decree of May 31, 1914.

The Republic of Nicaragua in 1913 exported 488,169 pounds of rubber, valued at $278,763, against 338,979 pounds in 1912, valued at $164,830. Of the 1913 exports the United States took 469,375 pounds, worth $268,856. This product is gathered in Nicaragua from wild trees in both the eastern and western parts of the country. Its cultivation has been attempted in the western section, but so far without marked success.

Peruvian exports of rubber in 1913 reached a value of $3,964,856, having fallen off considerably since 1912, when their total value was $6,357,001.

From January 1 to June 30, 1914, Ecuador exported 45,777 pounds of rubber, valued at $9,482, as compared with 131,380 pounds, valued at $67,106, exported during the same period of 1913, a decrease of 85,603 pounds in weight and $57,621 in value.

Recent Patents Relating to Rubber.

UNITED STATES OF AMERICA.

ISSUED FEBRUARY 2, 1915.

NO. 1,126,693. Fountain shaving brush. O. B. Block, Shippensburg, Pa.

1,126,765. Abdominal supporter. J. G. Hynds, assignor of nine-tenths to R. Begg—both of New York, N. Y.

1,126,840. Vehicle tire. H. S. Nunamaker, Cleveland, Ohio.

1,127,000. Proofing machine. G. J. Hicks, Saginaw, Mich., assignor to R. & O. Werner, Canstatt, Germany.

1,127,028. Pneumatic tire. A. W. Livingston, assignor to Standard Steel Wheel & Tire Armor Co.—both of Oakland, Cal.

1,127,039. Pneumatic tire. A. W. Livingston, assignor to Standard Steel Wheel & Tire Co.—both of Oakland, Cal.

1,127,205. Table mat with waterproof ply. S. B. Doernbach and J. H. Taylor, Philadelphia, Pa.

1,127,221. Ice bag cap. M. Finkelstein, New York, N. Y.

1,127,276. Educational souvenir; a hollow resilient ball. S. Potts, Vallejo, Cal.

1,127,304. Truss. G. A. Starkweather, Fort Madison, Iowa.

Designs.

46,899. Bathing cap. V. Guinzburg, assignor to I. B. Kleinert Rubber Co.—both of New York, N. Y.

46,900. Bathing cap. V. Guinzburg, assignor to I. B. Kleinert Rubber Co.—both of New York, N. Y.

46,901. Bathing cap. V. Guinzburg, assignor to I. B. Kleinert Rubber Co.—both of New York, N. Y.

46,902. Bathing Cap. V. Guinzburg, assignor to I. B. Kleinert Rubber Co.—both of New York, N. Y.

Trade Marks.

68,029. Bishop & Co., Los Angeles, Cal. The words *Rough House*. For chewing gum.

82,594. P. W. Koebig, New York, N. Y. The word *Philkob*. For composite machine packing made of rubber, asbestos, etc.

82,600. The National Tire & Rubber Co., East Palestine, Ohio. The word *Capitol*. For automobile tire casings and tire tubes.

82,720. United Drug Co., Boston, Mass. The word *Firstaid*. For rubber goods.

82,721. United Drug Co., Boston, Mass. The word *Stork*. For rubber nipples.

ISSUED FEBRUARY 9, 1915.

1,127,412. Vehicle wheel rim. B. Darrow, assignor to the Goodyear Tire & Rubber Co.—both of Akron, Ohio.

1,127,439. Machine for decorticating fibrous plants. W. J. Hollier, St. Louis, Mo.

1,127,448. Slitter. V. E. Jullien, Cincinnati, Ohio.

1,127,494. Tensioning device. E. Nali, assignor to the Goodyear Tire & Rubber Co.—both of Akron, Ohio.

1,127,517. Vehicle tire. E. M. Richardson, assignor of one-half to F. E. Hammond—both of Chicago, Ill.

1,127,540. Regulating apparatus for drying sheets of paper, cloth and the like. C. Stickle, Indianapolis, Ind.

1,127,544. Surgical garment. F. J. Stuart, St. Louis, Mo.

1,127,612. Respiratory mask. C. A. Furtaw, Philadelphia, Pa.

1,127,626. Tire reliner. C. G. Howard and E. G. Kinney, Rice Lake, Wis.

1,127,632. Life preserving suit. W. J. Karban, Bryant, Wis.

1,127,729. A rim and a resilient tire in combination. W. W. Byam, Chicago, Ill., assignor to Byam Tire & Rim Co., a corporation of Illinois.

1,127,789. Tread for tires. E. McCoy, assignor of fifty-two one-hundredths to J. N. Courtney and C. H. H. Wheeler, and forty-eight one-hundredths to J. N. Courtney—all of Detroit, Mich.

1,127,803. Device adapted to diminish the wear of parts of certain elastic tires. H. Pataud, deceased, Paris, France; by Marie L. M. J. Pataud, *née* De Salles, Paris, France, heiress in trust.

1,127,848. Pneumatic seal for life preserver. P. Bahr, Chicago, Ill.

1,127,898. Syringe. A. L. King, assignor of one-half to C. J. L. King—both of Chicago, Ill.

1,127,913. Cushion device for shoes. J. A. Murena, New York, N. Y.

1,127,988. Sanitary breathing shield. E. C. Gunnarson, U. S. Navy.

1,127,990. Shoe tread. H. M. Hansen, Quincy, Mass.

1,128,099. Foot ball. H. Bromley, New York, N. Y.

1,128,220. Heel cushion or sock sole for shoes. C. E. Bullard, Brookline, assignor to G. R. Stetson, New Bedford—both in Massachusetts.

1,128,256. Tire patch for inner tubes. W. W. Major, Midlothian, Tex.

Trade Marks.

72,001. E. H. Clapp Rubber Co., Boston, Mass. An illustration of two globes. For reclaimed rubber.

78,444. D. H. Robinson, New York, N. Y. An oval shaped design, a crown, the *D. H. R.*, a wreath and the words *Guaranteed Waterproof English Slip-On*. For raincoats, cravenetted coats and rubber coats.

79,464. E. G. Stearns, Chicago, Ill. An illustration of an eagle perched on a bar. For rubber boots and shoes.

81,428. Mishawaka Woolen Manufacturing Co., Mishawaka, Ind. The words *Ball-Band*. For rubber automobile tires.

81,490. Mishawaka Woolen Manufacturing Co., Mishawaka, Ind. An illustration of a ball, colored red. For rubber automobile tires.

81,979. Gibson Automobile Co., Indianapolis, Ind. An illustration of an eagle in flight, with the word *Falcon*. For inner tubes, casings and pneumatic tires.

82,744. Nyal Co., Detroit, Mich. The word *Nyal*. For hot water bottles, syringes, atomizers, nipples, etc.

83,025. Rutherford Rubber Co., Rutherford, N. J. Diamond shape design with letter *L*. For snap-on treads for vehicle tires.

83,087. The East Palestine Rubber Co., Unity Township, Columbiana county, Ohio. The word *Nabob*. For pneumatic tires, outer shoes for pneumatic tires, and inner tubes.

83,101. H. Starnes, Atlanta, Ga. The words *King Cotton*. For rubber tires, casings, blow-out patches and inner tubes.

83,385. The Warner Brothers Co., Bridgeport, Conn. The word *Circus*. For hose supporters.

83,401. Continental Rubber Works, Erie, Pa. The word *Vitalic*. For rubber bumpers, pedal rubbers, etc.

83,406. Continental Rubber Works, Erie, Pa. The word *Vitalic*. For rubber bags, bulbs, nipples, finger cots and dental gum.

ISSUED FEBRUARY 16, 1915.

1,128,304. Pneumatic vehicle tire. N. J. Flint, Suffolk, assignor to H. B. McQueen, Boston—both in Massachusetts.

1,128,387. Tire tread. T. B. Tiefenbacher, New York, N. Y.

1,128,459. Vacuum massage cup. F. M. Kleine, Duluth, Minn.

1,128,480. Process of making tires. C. B. Miller, Anderson, Ind.

1,128,682. Swimming apparatus. C. Homewood, Waterloo, Iowa.

1,128,831. Vulcanizer press. A. Adamson, Akron, Ohio.

1,128,851. Manufacture of substances from cellulose esters, cellulose compounds, india rubber and other ingredients. L. Collardon, West Bromwich, England.

1,129,007. Rubber heel and sole. W. Perkins, Alameda, Cal.

Designs.

46,942. Vehicle tire. J. Christy, Cleveland, assignor to The Portage Rubber Co., Akron—both in Ohio.

46,944. Rubber Hose. E. J. Coughlin, Passaic, N. J., assignor to New York Belting & Packing Co., New York, N. Y.

46,953. Tire. W. W. Lux, Detroit, Mich., assignor to United States Tire Co., New York, N. Y.

Trade Marks.

83,026. Rutherford Rubber Co., Rutherford, N. J. Diamond shape design with letter *L*. For rubber bumbers for automobile springs.

83,227. Harry Eby Shoe Co., Inc., Ephrata, Pa. A picture of a baby with the word *Smile*. For shoes and boots made from rubber, etc.

83,433. Brooks Brothers, New York, N. Y. An illustration of a lamb. For raincoats, etc.

ISSUED FEBRUARY 23, 1915.

1,129,084. Method of and apparatus for vulcanizing. J. R. Gammeter, Akron, Ohio, assignor to The B. F. Goodrich Co., New York.

1,129,108. Life preserver and protector. W. McKelvy, Winnipeg, Manitoba, Canada.

1,129,226. Valve ball having a flexible rubber neck. C. Pfau, assignor to The Pfau Manufacturing Co.—both of Norwood, Ohio.

1,129,528. Vehicle tire. E. L. Thompson, assignor of one-half to B. H. Cornell—both of Glenns Ferry, Idaho.

1,129,583. Inhaler. H. J. Miller, Fort Wayne, Ind.

1,129,619. Inhaling system. G. A. Zapf, New York, N. Y.

1,129,642. Loom for weaving tubular fabrics. A. E. Chernack, assignor to Chernack Manufacturing Co.—both of Pawtucket, R. I.

1,129,654. Resilient wheel. M. P. Dysart, San Angelo, Tex.

1,129,657. Uterine applicator. A. Fiessler, Stuttgart, Germany.

1,129,706. Wheel tire. A. J. Michelin, Clermont-Ferrand, France.

1,129,807. Vehicle tire. A. W. Livingston, Oakland, Cal.

Trade Marks.

79,602. Interstate Puncture Proof Co., Denver, Colo. An illustration of a tire with the words *You Auto Have It*. For a compound for curing punctures in tires.

82,278. Lyon Tire & Rubber Co., Chicago, Ill. Illustration of lion's head. For pneumatic tires, accessories, etc.

83,290. The Electric Cable Co., Bridgeport, Conn. The word *Signet*. For rubber-covered wires and cables.

83,354. H. Starnes, Atlanta, Ga. The word *Amazon*. For rubber tires and casings.

83,402. Continental Rubber Works, Erie, Pa. The word *Vitalic*. For friction fabric and insulating-tape.

84,002. The B. F. Goodrich Co., New York, N. Y. The word *Rainment*. For rain-coats.

ISSUED MARCH 2, 1915.

1,129,857. Elastic webbing strip for hat band. F. E. English, St. Louis, Mo.

1,129,876. Cutting Machine. A. Laitham, Beverly, Mass., assignor to United Shoe Machinery Co., Paterson, N. J.

1,129,932. Life-preserving garment. M. P. Whidden, Fort Meyers, Fla.

1,129,958. Life-preserver. R. F. Collins, Spokane, Wash.

1,130,030. Mandrel for forming and vulcanizing rubber hose. S. J. Sill, assignor of one-half to H. H. Hewitt, both of Buffalo, N. Y.

1,130,146. Vehicle wheel tire. M. Clark, Chicago, Ill.

1,130,202. A girdle foundation comprising an elastic tape. J. W. Schloss, New York, N. Y., assignor to Castlebone & Co., a corporation of New York.

1,130,273. Solid tire comprising an integrally united series of alternate layers of woven fabric and rubber. C. A. Hardy, Chicago, Ill.

1,130,297. Life-preserver. J. B. Kasser and M. Kasser, San Francisco, Cal.

1,130,367. Spring-tire. J. H. Barrett, Paso Robies, Cal.

1,130,424. Reinforcement for pneumatic tires. A. L. Murray, Auburn, Ind.

1,130,480. Inflating foldable boat. W. Czarnik, Chicago, Ill.

1,130,578. Rubberized fabric and rubber tire. M. A. Dees, Lubbock, Texas.

1,130,693. Anti-skid tread for resilient tires. H. T. Hughes, assignor of one-half to I. Wilkoff and L. S. Wilkoff, all of Youngstown, Ohio.

Trade Marks.

83,027. Rutherford Rubber Co., Rutherford, N. J. Diamond shape design with letter *L*. For fiber hoof-protectors.

83,289. The Electric Cable Co., New York, N. Y. The word *Security*. For rubber covered electric wires and cables.

83,403. Continental Rubber Works, Erie, Pa. The word *Vitalic*. For hocky-putts, rubber balls, billiard and pool cushions, dolls, life-preservers, foot-balls, golf-balls and striking-bags.

83,470. Henry James Collis, Taunton, Mass. The word *Corset*. For athletic ankle-supporters and athletic wristbands.

83,554. Calvin Price, Chicago, Ill. The word *Smile*. For chewing gum.

ISSUED MARCH 9, 1915.

1,130,736. Process of preserving rubber. I. D. Jewett, St. Paul, Ind.

1,130,740. Spring-wheel. W. E. Keesee, Los Angeles, Cal.

1,130,778. Combined rain-coat, slicker-suit and life-preserver. P. Waskin, Somerville, N. J.

1,130,795. Vehicle wheel-tire. M. Clark, Chicago, Ill.

1,130,903. Production of vulcanized synthetic caoutchouc. F. Hofmann and K. Gottlob, Elberfeld, Germany, assignors to Synthetic Patents Co., Inc., New York, N. Y.

1,130,944. Fountain pen. W. F. Ullrich, Warren, Pa.

1,130,964. Method of making tires. M. A. Dees, St. Louis, Mo.

1,130,995. Armored pneumatic tire. W. R. Morrison, Chicago, Ill.

1,131,064. Horseshoe pad. F. Kopf, Memphis, Tenn.

1,131,077. Tire cover. P. Peirce, assignor to R. B. Bailey Co.—both of Los Angeles, Cal.

1,131,113. Life-preserver. W. Bruce, Manton, Cal.

1,131,146. Slitter and rewinder. S. M. Langston, Camden, N. J.

1,131,173. Bead-adjusting device. J. E. Thropp, Trenton, N. J.

1,131,227. Life-preserver. C. J. Frid, Stege, Cal.

1,131,275. Production of sheeted rubber stock. C. H. Roper, Belmont, assignor to Hood Rubber Co., Boston—both in Massachusetts.

1,131,313. Resilient tire for vehicles. C. E. Beard, Columbiana, Ohio.

1,131,332. Tire-forming core. F. Coleman, Akron, Ohio.

1,131,349. Applicator. A. A. Ellis, Denver, Colo., assignor to The American Tampon and Applicator Co., a corporation of Colorado.

1,131,490. Diving apparatus. A. B. Dräger, Lübeck, Germany.

1,131,500. Pneumatic tire having a plurality of layers of puncture-proof plates. C. E. Ferry, Middlebury Center, Pa.

1,131,532. Night shirt having an elastic tape inserted in the neck. C. W. McClure, Atlanta, Ga.

1,131,568. Cushion heel. S. D. Smith, East Dedham, Mass., assignor of one-half to J. C. Kennedy, Boston, Mass.

Design.

47,083. Candy-coated chewing-gum. M. M. Swaab, Jr., N. Y., assignor to F. H. Fleer Corporation, Philadelphia, Pa.

Trade Marks.

75,924. Bowers Rubber Works, San Francisco, Cal. Diamond design. For composite rubber packing for pistons.

83,032. United Drug Co., Boston, Mass. The word *Rexall*. For atomizers, nipples, operating-gloves, douches, inhalers.

83,798. The B. F. Goodrich Co., New York, N. Y. Illustration of a dog with the word *Whippet*. For golf-balls.

84,377. Miller, Hess & Co., Inc., Akron, Pa. The word *Mil-ess-co*. For shoes made of rubber, leather or canvas.

[NOTE.—Printed copies of specifications of United States patents may be obtained from THE INDIA RUBBER WORLD office at 10 cents each, postpaid.]

GREAT BRITAIN AND IRELAND.

PATENT SPECIFICATIONS PUBLISHED.

The number given is that assigned to the Patent at the filing of the application, which in the case of these listed below was in 1913.
**Denotes Patents for American Inventions.*

[ABSTRACTED IN THE ILLUSTRATED OFFICIAL JOURNAL, FEBRUARY 3, 1915.]

22,458 (1913). Sound excluding ear cap made of Para or other rubber. J. C. McGowan, 436, Stanley Road, Bootle, Lancashire.

22,461 (1913). Pressing and curing rubber, etc. H. A. Wickham, Colonial Institute, Northumberland avenue, London.

22,494 (1913). Composition for repairing rubber tires. W. H. Butlin, 90, Albert street, and J. C. D. Tibbett, 17, Whitby street—both in West Brunswick, Melbourne, Australia.

22,518 (1913). Rubber ring protector against sudden temperature changes, for thermometers. G. W. Heath and G. A. Heath, Observatory Works, Crayford, Kent.

22,638 (1913). Apparatus for the recovery of volatile solvents in the manufacture of rubber textures. A. Boecler, 63, Hallerstrasse, Hamburg, Germany.

22,644 (1913). Substitute for ebonite. P. P. Damgaard, 81, Nyelandsvej, Frederiksberg, near Copenhagen.

*22,687 (1913). Vulcanite lined water tap plug. C. Wright, Youngwood, Pa., U. S. A.

22,704 (1913). Rubber solvents. P. Hildebrand, 94, Commercial street, London.

22,768 (1913). Wheel tire. E. R. Devereux, Second Avenue Chambers, Southampton Row, London.

22,810 (1913). Mold for molding and vulcanizing tires. J. Schionning, 45, Hejmdalsgade, Copenhagen.

22,882 (1913). Wheel tire having loose rubber plugs inserted in holes in the tire and projecting on the outside. W. T. G. Ellis, 121, St. Vincent street, Glasgow.

22,894 (1913). India rubber packing rings for vulcanizing apparatus. J. H. Nuttall and R. Bridge, Castleton Ironworks, Castleton, Lancashire.

22,931 (1913). Veil with elastic cord running through the edge. J. Dumoulin, 17, Rue Royale, Lyon, France.

22,947 (1913). Wheel tire. C. Thomas, 33, Tyn-y-coed Terrace, Thomastown, Tonyrefail, South Wales.

*23,006 (1913). Wheel tire. D. A. York, North Grove, Ind., U. S. A.

*23,015 (1913). Soft rubber gag for dental and other use. A. R. de Pass, Columbia, S. C., U. S. A.

23,021 (1913). Artificial respiration apparatus. R. H. Davis, 187, Westminster Bridge Road, London, and L. E. Hill, Osborne House, Loughton, Essex.

[ABSTRACTED IN THE ILLUSTRATED OFFICIAL JOURNAL, FEBRUARY 10, 1915.]

*23,055 (1913). Vulcanizing press. J. K. Williams, of Williams Foundry & Machine Co., Akron, Ohio, U. S. A.

23,059 (1913). Wheel tire. R. W. H. Rodney, Orchard street, St. Augustine's, Bristol.

23,087 (1913). Rubber foot grip for pedal. R. Surridge, 58, Lomond Grove, Camberwell, London.

23,109 (1913). Artificial respiration. Dragerwerk, H. & B. Drager, 53, Moislinger Allee, Lübeck, Germany.

23,131 (1913). Exercising apparatus comprising elastic cords. A. Abplanalp, 10, Sternengasse, Bale, Switzerland.

23,196 (1913). Sponge substitute. B. Ottorepetz, 3, Sackstrasse, Graz, Styria, Austria.

23,197 (1913). Waterproof cover for seats. F. B. Tofield, 109, White Hart Lane, Barnes, London.

23,245 (1913). An appliance for keeping the mouth closed during sleep to prevent snoring. A. A. Barratt, The Vicarage, Claygate, Surrey.

*23,396 (1913). Veil for use in rain or stormy weather, provided with a waterproof section. A. L. Boher, 118, North La Salle street, Chicago, Ill., U. S. A.

23,523 (1913). Wheel guard for tramcars comprising a cap of vulcanized rubber. K. Krienitz, 15, Magdeburgerstrasse, Halberstadt, Germany.

23,589 (1913). Rubber supporting feet for typewriters. S. V. Hall, 8, Ladywood Road, Liscard, Cheshire.

23,634 (1913). A reversible overcoat, rainproof, or the like having "Raglan" sleeves on the one side, and "set-in" sleeves on the reverse side. W. Wood and J. Mandleberg & Co., Albion Waterproofing Works, Pendelton, Manchester.

23,666 (1913). Pneumatic tire. W. Drury, 103, Bridge Road, Hammersmith, London.

[ABSTRACTED IN THE ILLUSTRATED OFFICIAL JOURNAL, FEBRUARY 17, 1915.]

*23,716 (1913). Wheel tire. F. Colby, Box 67, Tuxedo Park, New York, U. S. A.

*23,748 (1913). Elastic bands in hosiery. E. Werm, Swoyerville, Pa., U. S. A.

*23,749 (1913). Hose supporter. D. O'Donnell, 559 West One Hundred and Seventy-first street, New York, U. S. A.

25,899 (1913). Golf practising appliance. D. Maher, 155, Duke street, Liverpool.

23,932 (1913). Fabric for air craft. R. Weil, 6, Lortzingstrasse, Hanover, Germany.

24,033 (1913). A land wheel for aeroplanes consisting of a freely revoluble rim carrying a pneumatic tire. Soc Anon. Des Aéroplanes, R. Savary, 21, Rue de Bruxelles, Paris.

24,071 (1913). Motor horn with rubber bulb. W. H. Lenton, 13, Berkeley Road, Earlsdon, Coventry.

24,110 (1913). Collecting india rubber. H. L. C. Te Mechelen, Mergokarahardjan, Bandjar, Java.

24,125 (1913). Paint consisting of a metallic powder solution and rubber. British Patent Surbrite Co. and E. G. Meadway, 40, Trinity Square, London.

24,184 (1913). Spring wheel with continuous outer rigid ring and pneumatic, hydraulic rubber ring, and like hubs and cushions. J. G. Smith, 14, Sydney street, Stretford, Manchester.

24,232 (1913). Wheel tire. E. R. Devereux, 15a, Pembridge Square, London.

[ABSTRACTED IN THE ILLUSTRATED OFFICIAL JOURNAL, FEBRUARY 24, 1915.]

24,277 (1913). Spring wheel with continuous outer rigid ring and pneumatic cushions. A. F. Hawksley, Fairhaven, Lancashire.

24,342 (1913). Apparatus for coagulating latex. W. G. ten H. de Lange, 394 A, Marnixstraat, Amsterdam.

24,370 (1913). Driving belt. F. T. Swanborough, Oakwood, Melksham, and Avon India Rubber Co., Melksham, Wilts.

24,386 (1913). Wheel tire tread bands. F. Waigh, Cookham Rise, Berkshire.

24,389 (1913). Air tubes for wheel tires. R. S. Wood, 62, Boston street, Manchester.

24,454 (1913). Reservoir pens. H. Stein, 31, Neubaugasse, Vienna.

*24,480 (1913). Vehicle wheels. J. J. van Iderstine and A. W. White, 512 Chestnut avenue, Kansas City, Mo., U. S. A.

24,587 (1913). Mixing and agitating apparatus. B. Goldman, 102, Wilhelmsdorferstrasse, Charlottenburg, and Galvanische Metall Papier Fabrik Akt.-Ges., 2, Gerichtstrasse—both in Berlin.

24,610 (1913). Rotating balloon toy. F. Starck, 7, Smetana Promenade, Pilsen, Bohemia.

24,717 (1913). Wheel tire comprising a series of air tube sections, each with a separate valve. B. S. Miles, 3, Ramsdale Crescent, Sherwood, and H. Amphlet-Morris, 114, Nottingham Road, Sherwood Rise—both in Nottingham.

24,804 (1913). Roller apparatus for mixing rubber. A. Olier, Usines St. Rémy, Clermont Ferrand, Puy de Dome, France.

24,844 (1913). Veil having an elastic cord in bag-like formation. L. Martin, Paris House, Bridge street, Worcester.

[ABSTRACTED IN THE ILLUSTRATED OFFICIAL JOURNAL, MARCH 3, 1915.]

24,946 (1913). Capsule closures for bottles, comprising layers of rubber or gutta percha. A. Weissenthanner, 76, Avenue de la République, Paris.

25,028 (1913). Artificial teeth, having a layer of resilient rubber. R. M. Withycombe, 283, Elizabeth street, Sydney, Australia.

25,036 (1913). Extensible lens hood for use with folding cameras, of flexible material, such as silk, rubber, etc. A. L. Adams, Charing Cross Road, London.

25,060 (1913). Wheel tire. H. F. Heycock, Otaraia Road, Martinborough, Wellington, New Zealand.

25,099 (1913). Rubber sole and heel pads. F. J. Wood, Bank Parade, Burnley, Lancashire.

25,111 (1913). Clog sole with rubber plugs. H. Hickson, 79 Charlotte street, Kingston-on-Hull.

*25,124 (1913). Vehicle wheel with flat rubber tire. L. H. Schoonover, 727 E. Jefferson street, Boise, Idaho, U. S. A.

25,131 (1913). Comb manufacturing apparatus. V. P. Schuelmers, 10, Johannesplatz, Crefeld, Germany.

*25,169 (1913). Pneumatic tire provided with interchangeable outer treads. G. A. Shaw, 528 Third street, Barberton, Ohio, U. S. A.

25,181 (1913). Self sealing tire. H. Milligan, 42, Milner Road, Liverpool, and H. S. Hayco, "Beverly," Tarback Road, Huyton, near Liverpool.

*25,296 (1913). Envelope sealer having corrugated rubber belt, rubber rolls and rubber stripper. F. W. Storck, 14 Whitefield Road, Somerville, Mass., U. S. A.

25,351 (1913). Dual pneumatic tire with one or more solid treads vulcanized to fabric, leather, or like flexible bands. N. Rousselle, 212, Chaussée de Ninove, Molenbeek St. Jean, Brussels.

[ABSTRACTED IN THE ILLUSTRATED OFFICIAL JOURNAL, MARCH 10, 1915.]

25,605 (1913). Fabrics for airships, etc. T. Sloper, Southgate, Devizes, Wilts.

25,656 (1913). Looped elastic cord to be worn around the neck and adjusted to exert compression and thus prevent sea sickness. E. Stanjer, 28, Ramillies Road, Bedford Park, London.

*25,674 (1913). Eraser of the kind comprising a holder. B. B. Goldsmith, 19 East Seventy-fourth street, New York, U. S. A.

25,694 (1913). Sole and heel protectors consisting of a tread of rubber molded on a backing of wire gauze. I. S. Daniels, 5, Market street, Finsbury, London.

25,761 (1913). Vent peg having an inlet valve consisting of a rubber strip. F. Brewster, Station Hotel, Altrincham, Cheshire.

*25,768 (1913). Vulcanizing india rubber. F. W. Kremer, 32 Central avenue, Carlstadt, N. J., U. S. A.

*25,769 (1913). Tire tread. F. W. Kremer, 32 Central avenue, Carlstadt, N. J., U. S. A.

*25,770 (1913). Machine for making rubber tubes for wheel tires. F. W. Kremer, 32 Central avenue, Carlstadt, N. J., U. S. A.

*25,783 (1913). Rubber rimmed bath tub for invalids. E. A. M. Gallagher, Gouverneur Hospital, Water street, New York, U. S. A.

25,830 (1913). Formaldehyde derivatives. F. Pollak, 107, Königgrätzerstrasse, Berlin.

25,831 (1913). Spring wheel with solid rubber cushions. S. Hele, "Corona," Alexandra avenue, Rose Park, Adelaide, S. Australia.

25,836 (1913). Spring wheel with pneumatic cushions. A. Speight, 61, Arthur Road, Wimbledon Park, and E. W. Meredith, 15, Eastcheap—both in London.

25,839 (1913). Pneumatic tire with strips of wire gauze embedded between two layers of plastic rubber. Gofa Tyre Co., 31, Newmarket street, Skipton, and W. C. Platts, Manor House, Kettlewell—both in Yorkshire.

25,889 (1913). Rubber covered metal rods interwoven with gut or other strings for rackets. W. M. Short, 1, Woburn Road, Croydon, Surrey.

25,926 (1913). Rubber in attaching umbrellas, etc., to vehicles. G. S. Valentin, 18, Charing Cross Road, and C. H. Wakefield, 43, Blenheim Road, Bedford Park—both in London.

25,945 (1913). Life saving costume. A. Spilberg, 1, Rue du Commerce, Brussels.

25,997 (1913). Repairing rubber articles. W. H. Halsall, 21, Humber street, Longridge, and P. Coulton, 23, Beech street—both in Preston.

26,172 (1913). Impregnating fabrics. T. W. Jacobs, 25, Great Tower street, London.

26,176 (1913). Pneumatic boot tree comprising a rubber body. L. L. Barat, Petit-, 3, Calle O'Donnell, Madrid.

26,199 (1913). Coagulating latex. E. J. Byrne, Norwich Union Buildings, St. James' street, London.

26,206 (1913). Horse shoe with rubber tread. J. Lilley, 18, Chester Road, Cradley Heath, Staffordshire, and T. Adams, 41, Avenue Road, Black Heath, Birmingham.

THE FRENCH REPUBLIC.

PATENTS ISSUED (with Dates of Application).

473,603 (May 27, 1914). Process for manufacuring elastic stock. Wenjaert, C. M. b. H.

473,657 (October 4, 1913). Elastic tire for bicycles, motorcycles, automobiles and other vehicles. C. Planat.

473,663 (October 6). Threads and fabrics of pure asbestos for bandages. E. A. Mollaret and C. A. Bordat.

473,703 (October 9.) Elastic tire, made of a special felt, for automobiles, velocipedes and other vehicles, and process for manufacturing same. A. Joly.

473,713 (June 18). Product to prevent the escape of air from punctured tires. H. G. Taylor.

473,787 (October 14). Process for reclaiming rubber. C. E. Anquétil.

473,859 (June 22, 1914). Process and apparatus for manufacturing pneumatic tires. F. C. Morton.

473,860 (June 22). Process and apparatus for manufacturing casings of pneumatic tires and similar articles. F. C. Morton.

473,971 (October 24, 1913). Process for manufacturing rubber. A. Haas.

474,012 (October 27). Artificial leather. Société Française de Joints et de Caoutchouc.

474,024 (June 5, 1914). Improvement in vehicle wheels. The Dunlop Rubber Co., Limited.

474,025 (June 6). Improvements in tires for vehicle wheels and the like. The Dunlop Rubber Co., Limited.

474,078 (June 24). Caoutchouc product. Rever Rubber Co.

474,079 (June 24). Pneumatic tire. A. E. Guéneau.

474,081 (June 24). Mud guard. E. Ressès.

474,177 (June 27). System of garters for holding up the shirt. T. Bems.

[NOTE.—Printed copies of specification of French patents can be obtained from R. Bobet, Ingénieur-Conseil, 16 avenue de Villiers, Paris, at 50 cents each, postpaid.]

THE GERMAN EMPIRE.

PATENTS ISSUED (With Dates of Validity).

282,301 (July 16). Roller covering with a vulcanized fibre shell. E. Bertram, Düsseldorf.

282,347 (March 21, 1913). Process for the manufacture of metallic packing rings for stuffing boxes and the like. F. Deventer, Am Sciffgraben, 53, Hanover.

282,621 (July 28, 1914). Syringe. J. and H. Lieberg, Kassel.

282,622 (May 31). Hypodermic syringe. J. H. Wedig, Granite City, Va., U. S. A.; represented by J. Apitz and F. Reinhold, patent lawyers, Berlin, S. W. 11.

282,873 (March 19). Protector for elastic rims. K. Rauch, 41, Königsplatz, Chemnitz.

282,897 (November 17, 1912). Plated metallic hose. L. Blumer, Zwickau, i. Sa.

282,898 (March 30, 1913). Disc shaped valve of rubber, with a central opening for receiving a bolt. G. Moncorps, Köpenickerstrasse, 51, Friedrichshagen.

283,366 (September 1, 1912). A stiffener roller made of rubber for leather working machines. A. H. Kehrhahn, 177, Fürstenbergerstrasse, Frankfort, a. M.

283,407 (January 15, 1911). Hollow rubber tire. Supplement to patent No. 264,863. Max C. Overman, New York, U. S. A.; represented by K. Hallbauer and A. Bohr, patent lawyers, Berlin, S. W. 11.

283,437 (January 11). Fabric for the construction of the hulls of airships and process for manufacturing the same. Metzeler & Co., Munich.

283,546 (January 20, 1915). Vaginal syringe. F. Niebusch, 2-4, Weidendamm, and B. Malaika, née Stawik, Ohlau-Ufer, 41, Breslau.

283,262 (December 5). Piston packing with one or more flexible packing rings. Siemens and Halske Aktien Gesellschaft, Siemensstadt, 6, Berlin.

THE MARKET FOR CHEMICALS AND COMPOUNDING INGREDIENTS.

THE interesting feature of the present market is the scarcity of all so-called coal tar products. This applies to all kinds of benzol solvents and compounds. Those who use aniline oil as an accelerator—of whom there are a number—are bidding as high as $1.75 per pound, but the supplies are small and few sales are reported. The present American production is insignificant compared with the extent of the demand.

The European need of tri-nitro toluol and picric acid explosives has stimulated several enterprises in the production of benzol and toluol, by washing by-product oven gases.

Lead and zinc pigments have shown advances in price during the month. Foreign zinc oxides have advanced on account of shipping difficulties. Earthy fillers of domestic origin are being offered at low figures. Linseed oil has advanced 5 cents a gallon. Perhaps the steadily increasing prices of imported minerals will result in the development of our own deposits of magnesite, mica and graphite.

PRICES OF CHEMICALS AND COMPOUNDING INGREDIENTS.
NEW YORK, MARCH 30, 1915.

Acetic acid, 28 per cent., bbls.	lb.	$0.01¼@	.02
Acetic acid, glacial, 99½ per cent., carboys	lb.	.07¾@	.08¼
Acetone	lb.	.21 @	.23
Aluminum flake, carloads	ton	18.00 @	20.00
Aniline oil	lb.	1.40 @	1.60
Antimony, crimson, sulphuret of	lb.	.60 @	
Antimony, golden, sulphuret of	lb.	.40 @	.47
Arsenic sulphide	lb.	.12 @	
Asbestine	ton	18.00 @	20.00
Asbestos	ton	20.00 @	
Asphaltum, "G." Brilliant	ton	42.00 @	
Barytes, domestic	ton	15.00 @	20.00
Barytes, foreign	ton	17.50 @	25.00
Basofor	ton	55.00 @	
Benzol, 90 per cent	gal.	.70 @	
Black hypo	lb.	.35 @	.40
Blanc fixe, dry, bbls.	lb.	.03⅞@	.04
Carbon bisulphide, drums of 1,000 lb.	lb.	.06½@	.07¼
Carbon tetrachloride, drums	lb.	.12 @	.16
Caustic soda, powdered, 76 per cent	lb.	.02 @	.02¼
Chalk, light precipitated, casks	lb.	.04½@	.05½
China clay, domestic	ton	10.50 @	11.00
China clay, imported	ton	14.00 @	16.00
Chrome, yellow	lb.	.10½@	.13
Chrome, green	lb.	.15½@	.23½
Corn oil, crude	lb.	.06½@	.06⅝
Emarex	lb.	.03½@	
Fossil flour, powdered	ton	50.00 @	
Fossil flour, bolted	ton	60.00 @	
Gas black	lb.	.04 @	.06
Gilsonite	ton	37.50 @	
Glycerine, C. P., bulk	lb.	.20½@	
Graphite	lb.	.08 @	.12
Green oxide of chromium	lb.	.30 @	
Iron, oxide, black, powdered	lb.	.06 @	
Iron, oxide, red, domestic	lb.	.01½@	.10
Infusorial earth, powdered	ton	50.00 @	
Infusorial earth, bolted	ton	60.00 @	
Ivory, black	lb.	.08 @	.12
Lampblack	lb.	.03 @	.07
Lead, sublimed blue	lb.	.04⅞@	
Lead, sublimed white	lb.	.05 @	
Lead, white (basic carbonate)	lb.	.05¼@	.05½
Lead, white (basic sulphate)	lb.	.05 @	.05¼
Lime, flour, ton lots $15	bbls., lb.	.01 @	.01½
Lime, hydrated, ton lots $15	bbls., lb.	.01 @	.01½
Linseed oil, carload	gal.	.60 @	
Litharge, powdered or flake	lb.	.05½@	.05½
Lithopone, American	lb.	.04½@	.04¾
Lithopone, imported	lb.	.03⅞@	.04
Magnesia, carbonate	lb.	.04½@	.06¼
Magnesia, calcined, heavy	lb.	.35 @	
Magnesia, calcined, light	lb.	.25 @	
Magnesite	lb.	.07 @	
Mica	lb.	.04 @	.05
Mineral rubber	lb.	.01½@	.03¼
Naphtha, V. M. & P., deodorized	gal.	.09 @	
Naphtha, 74@76 deg.	gal.	.24 @	
Naphtha, 86 deg.	gal.	.26 @	
Orange mineral, domestic	lb.	.07¼@	.08¼
Paragol	lb.	.06 @	
Prussian blue	lb.	.33 @	
Pumice stone, powder, bbls.	lb.	.01½@	.02
Rape seed oil, blown	gal.	.86 @	.87
Resin	per 280 lbs.	3.80 @	5.00
Rosin oil, 1st, 2d, 3d, 4th run	gal.	.26 @	.60
Rubber flux	lb.	.06 @	
Rubber substitute, black	lb.	.06½@	
Rubber substitute, white	lb.	.07½@	
Shellac, fine orange	lb.	.20 @	.23
Soapstone, powdered	ton	7.50 @	
Sulphur chloride, drums	lb.	.06½@	
Sulphur, flowers	cwt.	2.20 @	2.60
Talc, American	ton	10.00 @	
Talc, French	ton	20.00 @	22.50
Tripolite earth, powdered	ton	50.00 @	
Tripolite earth, bolted	ton	60.00 @	
Turpentine, spirits	gal.	.45 @	
Ultramarine blue	lb.	.08½@	.13
Vermilion, Chinese	lb.	.90 @	1.00
Vermilion, English	lb.	1.10 @	1.15
Wax, Bayberry	lb.	.23 @	.24
Wax, Beeswax, white	lb.	.41 @	.45
Wax, Ceresin, white	lb.	.10 @	.25
Wax, Carnauba	lb.	.25 @	.50
Wax, Ozokerite, refined, white	lb.	.30 @	.40
Wax, Paraffin, domestic 120 m. p.	lb.	.04¼@	.04¾
Whiting, Alba, factory	ton	6.50 @	7.50
Whiting, commercial	cwt.	.40 @	.50
Whiting, Paris white, American	cwt.	.70 @	.75
Whiting, English cliffstone	cwt.	.75 @	1.10
Zinc oxide, American process	lb.	.05⅜@	.07½
Zinc oxide, French process, green seal	lb.	.10 @	.10⅛

THE RUBBER SCRAP MARKET.

THE expected improvement in the scrap rubber trade has not been realized; but the good business being done in general rubber manufactured products will eventually be felt by the waste trade. Some dealers prefer to sell on small margins rather than hold out for higher prices. Stocks during the first week of March were really larger than they were at the same time in February. Shoes had quite a drop, selling at 7½ cents, delivered. The mills were buying auto. tires at 4.30@4.35 cents. It is noted that the mills are now specifying the trade name in their orders for white tires—quotations are asked for Goodyear, Goodrich, United States, Firestone and other well-known tires.

The prices on shoes and auto. tires weakened toward the end of the month. Sales of shoes were made at 7⅛@7¼ cents, while auto. tires moved slowly at 4⅛@4¼ cents.

RUBBER SCRAP PRICES PAID BY CONSUMERS FOR CARLOAD LOTS.

New York, March 30, 1915.

	Per Pound.		
Boots and shoes	cents	7 @	7⅛
Trimmed arctics		5½@	5¾
Auto tires		4¼@	4½
Solid tires		4¼@	
No. 1 inner tubes		23 @	
No. 2 inner tubes		11½@	12½
Red tubes		13 @	13½
Bicycle tires		3 @	
Irony tires		1¼@	2¼
No. 1 auto peelings		8¼@	9¼
Mixed auto peelings		7 @	7½
No. 1 soft white rubber		11 @	12
White wringer rubber		9 @	
No. 1 red scrap		10 @	11
Mixed red scrap		7¼@	7½
Mixed black scrap		2¼@	
Rubber car springs		3¼@	
Horse shoe pads		3 @	3¼
Matting and packing		½@	¾
Garden hose		⅝@	¾
Air brake hose		3¼@	3½
Cotton fire hose		1¾@	2

RUBBER COMPANY SHARE QUOTATIONS.

The following market quotations of the shares of rubber manufacturing companies on March 29 last are furnished by John Burnham & Co., 31 Nassau street, New York, and 41 South La Salle street, Chicago:

	Bid.	Asked.
Ajax-Grieb Rubber Co., common	285	...
Ajax-Grieb Rubber Co., preferred	100	...
Firestone Tire & Rubber Co., common	398	404
Firestone Tire & Rubber Co., preferred	110	112
The B. F. Goodrich Co., common	36½	38
The B. F. Goodrich Co., preferred	96¾	98½
Goodyear Tire & Rubber Co., common	195	198
Goodyear Tire & Rubber Co., preferred	103½	104½
Kelly-Springfield Tire Co., common	117	118
Kelly-Springfield Tire Co., 1st preferred	81	83
Kelly-Springfield Tire Co., 2nd preferred	123	125
Miller Rubber Co., common	165	170
Miller Rubber Co., preferred	101	103
Portage Rubber Co., common	34	36
Portage Rubber Co., preferred	85	95
Rubber Goods Manufacturing Co., preferred	103	107
Swinehart Tire & Rubber Co	74½	76
United States Rubber Co., common	64	65
United States Rubber Co., preferred	105	106

Review of the Crude Rubber Market.

NEW YORK.

March 30, 1915.

At the beginning of the month, the indications were that the supply of plantation rubber would be rather restricted. Arrivals from London had fallen off owing to the continuance of the dock strikes at that city; and in addition to this fact, the market was decidedly unsettled owing to the announcement by the British Government of the great extension of its blockade against Germany. Prices were firm, however, first latex crêpe selling at 65 cents. and smoked sheet ribbed at 66 cents spot. Upriver fine was steady at 58½ cents.

The continued delay in shipments and difficulties reported in obtaining London permits during the second week had a tendency to limit trading. The manufacturers were not at all anxious to buy and were not greatly attracted even by the low price of Upriver fine. The knowledge that London stocks were large had a tendency to curtail buying. The resumption of direct shipments from the East to America tended naturally to make the market still less animated.

A general impression prevailed that now there would be plenty of rubber for everybody. This is a mistaken deduction, for these direct boats are only carrying limited quantities. It is reported that the four or five ships now afloat from the East are only carrying between 600 and 800 tons. The "City of Rangoon," now due with 100 tons, is the first direct boat from the East since this service was discontinued. Other direct boats are the "Suveric," from Colombo, now due; the "Kafue" from the same port, due about April 15, and the "Kasama" on the way from Singapore. The "Frankmount," from London, is now due, and the "Saxon Monarch" sailed last Saturday from the same port. The "Sergipe," of the Lloyd Brasiliaro Line, left Pará March 24 with 470 tons. The "Stephen," of the Booth Line, is now due from Pará and Manaos with 760 tons.

Heavy receipts marked the closing week of March and prices for round lots are steady: First latex crêpe, 62 cents; smoked sheet ribbed, 66 cents for spot, and Upriver fine, 58 cents.

SHIPMENTS FROM SOUTH AMERICAN PORTS.

Rubber afloat from Brazilian ports exported to Europe is as follows: The Brazilian S. S. "Ceara" sailed from Bahia on March 9 for Genoa, Italy, with 12 tons. The Booth Line S. S. "Anselm" sailed from Manaos on March 10 for Liverpool with 444 tons.

Adelbert H. Alden, Limited, Pará, reports stocks at Pará as 2,872 tons on January 31, with arrivals in February of 5,700 tons, making a total of 8,572 tons. Shipments to the United States were 3,531 tons; to Europe 2,837 tons; leaving a stock of 2,204 tons at Pará on the 28th of February.

THE LONDON MARKET.

The fact that the shipping and dock difficulties in London still continue without any particular probability of their early termination has kept the London market for crude rubber strong during the entire month of March, and that notwithstanding the fact that the London stocks on February 28 amounted to 7,200 tons, as compared with 6,639 tons on the 31st day of January. London prices during the first week of March were as follows: Standard crêpe, 2*s.* 3¼*d.*; smoked sheet, 2*s.* 5*d.*, and hard fine, 2*s.* 5*d.* There was a tendency during the early part of the month on the part of the Exports Committee to place some restrictions on the license permits issued, the feeling being that licenses had already been issued for a very considerable tonnage, but it was soon discovered that those who had received the permits had not been able to get all the rubber shipped which the permits called for, and in addition to that fact there were continued substantial arrivals from the East. Consequently permits were again issued very freely.

The increase in freight rates from the East caused by the shortage in carriers, the higher insurance because of war risks and the higher interest charged by the banks, all tended to increase the cost at London of plantation grades.

Prices ruled firm during the month, being a trifle higher at its close than during the opening week. Prices for the last week of March were as follows: Standard crêpe brought 2*s.* 4*d.* spot, and smoked sheet 2*s.* 4½*d.* Hard fine was steady at 2*s.* 5½*d.* Pará sorts have received but comparatively little attention in London on account of the Exchange conditions at Pará and Manaos.

NEW YORK QUOTATIONS.

Following are the quotations at New York one year ago, one month ago, and March 30, the current date:

PARA.	Apr. 1, '14.	Mar. 1, '15.	Mar. 30, '15.
Upriver, fine, new	74@75	58½@	58@
Upriver, fine, old	.....	60@	59@60
Islands, fine, new	69@71	50@	53@
Islands, fine, old	.....	.....	.....
Upriver, coarse, new	44@45	45@46	46@
Upriver, coarse, old	.....	.....	.....
Islands, coarse, new	31@32	28@	30½@
Cameta	35½@36	32½@33	34@
Caucho, upper	45@46	46@48	47½@
Caucho, lower	.....	43@44	44@
PLANTATION HEVEA.			
Smoked sheet ribbed	64@65	65@66 Spot 62½@63 Afloat	65@ 62@
First latex crepe	63@64	62@63 Spot 60½@61 Afloat	62@ 61@
Fine sheets and biscuits unsmoked	62@63	59@60	.....
CENTRALS.			
Corinto	.....	44@45	46@47
Esmeralda, sausage	43@44	44@45	46@
Guayaquil, strip	.....	.....	.....
Nicaragua, scrap	40@41	43@44	43@44
Mexican, scrap	42@43	.....	.....
Mexican, slag	.....	.....	.....
Manicoba, scrap	.....	.....	37½@
Mangabeira, sheet	.....	37½@40	40@
Guayule	.....	.....	.....
Balata, sheet	.....	56@57	.....
Balata, block	50@51	45@46	.....
AFRICAN.			
Lopori, ball, prime	53@54	.....	.....
Massai, red	49@54	51½@52½	52@54
Soudan Niggers	49@54	.....	.....
Cameroon, ball	34@	.....	37@40
Benguela	31@	.....	.....
Madagascar, pinky	.....	.....	.....
Accra, flake	21@22	23@24	22½@23
EAST INDIAN.			
Assam	.....	.....	.....
Pontianak	6@6½	7½@8	.....

New York.

In regard to the financial situation, Albert B. Beers (broker in crude rubber and commercial paper, No. 68 William street, New York) advises as follows: "The market conditions as regards commercial paper in the rubber line have remained the same during March as in February, the demand continuing good at 4@4½ per cent. for the best names, and 5@5½ per cent. for those not so well known; the volume of paper coming into the market has increased somewhat this month."

NEW YORK PRICES FOR FEBRUARY (NEW RUBBER).

	1915.	1914.	1913.
Upriver, fine	$0.57@0.61	$0.75@0.79	$0.96@1.03
Upriver, coarse	.44@ .48	.46@ .47	.72@ .78
Islands, fine	.50@ .54	.64@ .69	.92@ .97
Islands, coarse	.28@ .32	.31@ .32	.47@ .51
Cametá	.30@ .36	.35@ .38	.48@ .51

RUBBER STATISTICS FOR LONDON AND LIVERPOOL, FEBRUARY, 1915.

			Stocks.		
London—	Imports.	Deliveries.	1915.	1914.	1913.
Plantation ..... *tons*	5,723	5,191	7,175	4,257	2,998
Other kinds	32	89	674	549	798
Total	5,755	5,280	7,849	4,806	3,796
Liverpool—					
Pará	931	487	768	1,003	700
Other kinds	190	238	323	1,103	1,015
Total	1,121	725	1,091	2,106	1,715
Total London and Liverpool...	6,876	6,005	8,940	6,912	5,511

UNITED KINGDOM.

CRUDE RUBBER.*

	February.			January and February.		
IMPORTS FROM—	1913.*	1914.*	1915.	1913.*	1914.*	1915.
Dutch East Indies ..... *tons*	...	...	140	...	...	423
French West Africa	143	34	30	231	52	38
Gold Coast	104	35	8	205	40	22
Other countries in Africa	...	...	35	...	...	431
Peru	138	11	4	335	178	36
Brazil	1,771	1,836	1,036	3,589	2,933	1,309
British India	...	...	155	...	...	373
Straits Settlements (inc. Labuan).	1,142	1,440	2,342	2,245	3,032	5,792
Federated Malay States	694	872	753	1,397	1,657	1,843
Ceylon and Dependencies	555	812	1,578	1,078	1,422	3,444
Other countries	1,756	1,413	133	3,218	2,935	227
Total	6,303	6,453	6,214	12,298	12,449	13,938
Waste and Reclaimed Rubber....	...	...	40	...	...	87
Gutta Percha (inc. Balata).....	352	257	348	1,001	654	631
EXPORTS TO—						
Russia ..... *tons*	606	563	522	1,273	1,274	851
Germany	932	835	...	1,754	1,661	...
Belgium	146	237	...	296	532	...
France	326	561	544	708	1,152	851
United States	1,182	1,427	3,328	2,627	3,015	3,670
Other countries	294	361	570	533	736	1,481
Total	3,486	3,984	4,964	7,191	8,370	6,853
Waste and Reclaimed Rubber—						
U. K. manufacture.....	...	...	158	...	...	329
Foreign and Colonial.....	...	...	6	...	...	14
Gutta Percha (inc. Balata).....	80	30	36	112	75	61

*For 1913 and 1914 Crude Rubber includes Waste and Reclaimed.

IMPORTS FROM PARA AT NEW YORK.

[The Figures Indicate Weight in Pounds.]

FEBRUARY 23.—By the steamer *Justin* from Pará and Manáos:

	Fine.	Medium.	Coarse.	Caucho.	Total.
Meyer & Brown	118,800	20,500	199,500	25,700=	364,500
Arnold & Zeiss	195,400	22,600	72,100	.....=	290,100
Robinson & Co	93,200	.....	16,000	.....=	109,200
General Rubber Co	60,600	8,700	3,600	.....=	72,900
Robert Badenhop	22,200	2,000	3,000	34,200=	61,400
Henderson & Korn	13,300	.....	36,200	7,700=	57,200
G. Amsinck & Co	41,300	4,000	2,100	.....=	47,400
Johnstone, Whitworth Co....	.....	.....	41,400	.....=	41,400
H. A. Astlett & Co	10,700	400	5,800	8,900=	25,800
W. R. Grace & Co	22,200	2,000	.....	.....=	24,200
Muller, Schall & Co	.....	.....	.....	8,400=	8,400
Total	577,700	60,200	379,700	84,900=	1,102,500

MARCH 1.—By the steamer *Rio de Janeiro* from Pará:

Meyer & Brown	134,300	11,300	43,200	177,600=	366,400
G. Amsinck & Co	66,200	4,500	19,900	31,700=	122,300
Arnold & Zeiss	71,700	10,300	25,600	.....=	107,600
H. A. Astlett & Co	38,100	9,800	17,800	29,100=	94,800
Henderson & Korn	6,700	2,200	37,500	19,300=	65,700
Davies, Turner & Co	9,600	.....	22,600	.....=	32,200
Robinson & Co	12,300	1,600	15,800	.....=	29,700
Hagemeyer & Brunn	8,900	.....	5,200	.....=	14,100
Rumsey & Greutert Co., Inc..	11,100	.....	.....	.....=	11,100
Total	358,900	39,700	187,600	257,700=	843,900

MARCH 2.—By the steamer *Denis* from Pará and Manáos:

Meyer & Brown	213,300	44,700	157,100	55,300=	470,400
General Rubber Co	358,600	27,700	56,700	.....=	443,000
Arnold & Zeiss	86,800	7,400	40,300	9,700=	144,200
Henderson & Korn	74,600	400	12,800	.....=	87,800
Robinson & Co	58,700	.....	13,000	3,900=	75,600
H. A. Astlett & Co	51,800	9,500	5,700	5,800=	72,800
Aldens' Successors, Limited.	9,000	30,000	31,200	700=	70,900
Robert Badenhop	44,900	5,000	6,500	300=	56,700
W. R. Grace & Co	.....	.....	.....	46,800=	46,800
Adolph Hirsch & Co	21,200	2,900	1,200	.....=	25,300
Davies, Turner & Co	9,300	.....	.....	.....=	9,300
G. Amsinck & Co	3,200	700	3,500	300=	7,700
Total	931,400	128,300	328,000	122,800=	1,510,500

MARCH 2.—By the steamer *Denis* from Itacoatiara and Iquitos:

Robinson & Co	24,900	900	5,300	2,100=	33,200
H. A. Astlett & Co	.....	.....	9,500	.....=	9,500
Total	24,900	900	14,800	2,100=	42,700
IQUITOS.					
Meyer & Brown	27,300	8,500	14,000	93,200=	143,000
G. Amsinck & Co	45,200	12,000	31,400	246,900=	335,500
Commercial Bank of Spanish America	5,700	.....	1,500	173,200=	180,400
W. R. Grace & Co	45,400	4,300	44,000	51,100=	144,800
H. C. Kupper	42,800	.....	20,500	52,400=	115,700
H. A. Astlett & Co	31,200	3,700	14,100	49,900=	98,900
Johnstone, Whitworth Co....	44,600	3,200	12,200	18,800=	78,800
Rumsey & Greutert Co., Inc.	10,500	400	3,600	400=	14,900
Total	252,700	32,100	141,300	685,900=	1,112,000

MARCH 13.—By the steamer *Minas Geraes* from Pará:

Meyer & Brown	94,700	12,900	156,000	1,000=	264,600
General Rubber Co	144,600	23,000	10,800	.....=	178,400
Henderson & Korn	18,500	6,700	82,900	9,200=	117,300
Arnold & Zeiss	24,900	8,700	68,700	.....=	102,300
G. Amsinck & Co	65,100	.....	18,400	.....=	83,500
Aldens' Successors, Limited.	.....	27,405	20,000	.....=	47,405
H. A. Astlett & Co	8,300	3,800	6,100	.....=	18,200
Muller, Schall & Co	12,200	.....	1,400	5,200=	18,800
Total	368,300	82,505	364,300	15,400=	830,505

MARCH 15.—By the steamer *Atahualpa* from Pará and Manáos:

Meyer & Brown	107,500	12,600	115,100	110,400=	345,600
Arnold & Zeiss	95,700	20,000	107,000	73,700=	296,400
Henderson & Korn	10,700	.....	116,500	43,100=	170,300
G. Amsinck & Co	70,300	7,300	14,500	.....=	92,100
H. A. Astlett & Co	3,900	11,000	31,600	19,000=	65,500
Robinson & Co	52,800	700	3,800	.....=	57,300
Aldens' Successors, Limited.	3,700	22,051	32,000	.....=	57,751
Hagemeyer & Brunn	50,600	.....	.....	.....=	50,600
Davies, Turner & Co	30,000	.....	.....	5,700=	35,700
Robert Badenhop	22,200	2,700	3,100	.....=	28,000
Rumsey & Greutert Co., Inc.	21,100	4,500	1,600	.....=	27,200
Johnstone, Whitworth & Co.	.....	.....	23,900	4,700=	28,600
W. R. Grace & Co	.....	.....	.....	22,100=	22,100
Total	468,500	80,851	449,100	278,700=	1,277,151

CENTRALS.

[*This sign, in connection with imports of Centrals, denotes Guayule rubber.]

		Pounds.
FEBRUARY 23.—By the *Tapajos*=Bahia:		
J. H. Rossbach & Bros	90,000	
Adolph Hirsch & Co	60,000	
Aldens' Successors, Limited.....	40,000	190,000
MARCH 1.—By the *Rio de Janeiro*=Bahia:		
Adolph Hirsch & Co		40,000
FEBRUARY 24.—By the *Santa Marta*=Colombia:		
G. Amsinck & Co	1,500	
A. Held	1,500	3,000
FEBRUARY 25.—By the *Comus*=New Orleans:		
A. N. Rotholz	3,500	
E. Steiger & Co	4,500	8,000
FEBRUARY 26.—By *El Norte*=Galveston:		
Various		*180,000
FEBRUARY 27.—By the *Alliance*=Colon:		
G. Amsinck & Co	10,500	
J. S. Sembrada & Co	300	
Various	1,200	12,000
MARCH 1.—By *El Oriente*=Galveston:		
Various		*50,000
MARCH 3.—By *El Valle*=Galveston:		
Various		*315,000
MARCH 6.—By the *Colon*=Colon:		
W. R. Grace & Co	3,500	
Banco Italiano	5,600	
Lawrence Johnson & Co	2,000	
Andean Trading Co	2,200	
Hispano-American Sales Co.....	3,500	
Pottberg, Ebeling Co	300	
M. A. De Leon & Co	200	17,300
MARCH 1.—By the *Calamares*=Port Limon:		
Isaac Brandon & Bros		2,000
MARCH 6.—By the *Carrillo*=Colombia:		
Schutte, Bunemann & Co.....	10,000	
Mecke & Co	3,500	13,500
MARCH 8.—By the *Siraola*=Guatemala:		
A. Rosenthal & Sons		1,500
MARCH 8.—By the *Momus*=New Orleans:		
E. Steiger & Co		10,000
MARCH 12.—By the *El Alba*=Galveston:		
Various		*45,000
MARCH 12.—By the *Creole*=New Orleans:		
E. Steiger & Co		6,000
MARCH 15.—By the *Advance*=Colon:		
G. Amsinck & Co	1,000	
Pottberg, Ebeling & Co	500	
Piza, Nephews & Co	5,000	6,500
MARCH 16.—By the *Metapan*=Colombia:		
Isaac Brandon & Bros	500	
W. R. Grace & Co	600	
A. A. Linde & Co	600	1,700
MARCH 16.—By the *Herminius*=Montevideo:		
G. Amsinck & Co	5,000	
Various	20,000	25,000
MARCH 16.—By the *Metapan*=Colon:		
W. R. Grace & Co	25,000	
Neuss, Hesslein & Co	11,000	36,000
MARCH 18.—By the *Camaguey*=Mexico:		
G. Amsinck & Co	7,000	
Harburger & Stack	2,000	
American Trading Co	15,000	
W. Loaiza & Co	2,000	26,000
MARCH 18.—By the *St. Louis*=Liverpool:		
Adolph Hirsch & Co		22,500
MARCH 19.—By the *Panama*=Colon:		
G. Amsinck & Co	5,500	
Neuss, Hesslein & Co	2,000	
W. R. Grace & Co	1,700	
Santiago Smithers	2,900	12,100

MARCH 20.—By the *Morro Castle*=Mexico:

J. F. Dunbar	6,500	
Lawrence Johnson & Co.	3,500	
R. del Castillo & Co.	500	
Mexican Hide Co.	300	
H. Marquardt & Co.	600	11,400

MARCH 20.—By the *El Oriente*=Galveston:

Various	*56,000

MARCH 20.—By the *Cristobal*=Colon:

G. Amsinck & Co.	18,300	
Lawrence Johnson & Co.	6,900	
Otto Gerdau & Co.	2,900	
W. R. Grace & Co.	1,200	
J. S. Sembrada & Co.	800	
A. M. Capen's Sons	6,200	
H. Wolff & Co.	1,900	
Pablo Calvet & Co.	1,200	39,400

MARCH 22.—By the *Bella*=Puerto Cortez:

Eggers & Heinlein	1,000

MARCH 22.—By the *El Valle*=Galveston:

Various	*115,000

MARCH 22.—By the *St. Paul*=Liverpool:

Adolph Hirsch & Co.	4,000

MARCH 23.—By the *Pastores*=Port Limon:

Isaac Brandon & Bros.	500

AFRICANS.

	POUNDS.	
MARCH 1.—By the *New York*=Liverpool:		
Rubber Trading Co.		43,000
MARCH 1.—By the *Isle of Mull*=Lisbon:		
Various		155,000
MARCH 5.—By the *Roma*=Lisbon:		
Meyer & Brown	70,000	
Robert Badenhop	40,000	
G. Amsinck & Co.	15,000	
Various	18,500	143,500
MARCH 13.—By the *Arabic*=Liverpool:		
Rubber Trading Co.	3,000	
Various	26,500	29,500
MARCH 15.—By the *Adriatic*=Liverpool:		
Rubber Trading Co.		21,000
MARCH 16.—By the *Orduna*=Liverpool:		
Arnold & Zeiss		45,000
MARCH 18.—By the *St. Louis*=Liverpool:		
Ed. Maurer		4,500
MARCH 18.—By the *Atlantide*=Lisbon:		
C. B. Richard & Co.	112,000	
Robert Badenhop	135,000	247,000
MARCH 23.—By the *Camperdown*=Lisbon:		
Meyer & Brown	38,000	
Robert Badenhop	80,000	
Various	32,000	150,000

EAST INDIAN.

[*Denotes plantation rubber.]

	POUNDS.	
FEBRUARY 27.—By the *Baltic*=Liverpool:		
Rumsey & Greutert Co., Inc.		*17,000
MARCH 1.—By the *Samland*=London:		
General Rubber Co.	*200,000	
Henderson & Korn	*45,000	
Charles T. Wilson & Co., Inc.	*11,200	
L. Littlejohn & Co.	*45,000	
Rumsey & Greutert Co., Inc.	*22,500	
The B. F. Goodrich Co.	*11,200	
William H. Stiles	*27,000	
Ed Maurer & Co., Inc.	*65,000	
Various	*17,000	*443,900
MARCH 1.—By the *New York*=Liverpool:		
General Rubber Co.		*40,000
MARCH 3.—By the *Gibraltar*=Colombo:		
Meyer & Brown	*45,000	
Rubber & Guayule Agency, Inc.	*19,000	
Rumsey & Greutert Co., Inc.	*45,000	
Various	*50,000	*159,000
MARCH 6.—By the *St. Stephen*=London:		
General Rubber Co.	*490,000	
Alden's Successors, Limited	*136,000	
The B. F. Goodrich Co.	*390,000	
L. Littlejohn & Co.	*450,000	
Rubber Trading Co.	*45,000	
Rumsey & Greutert Co., Inc.	*22,500	
Ed. Maurer & Co., Inc.	*22,500	
William H. Stiles	*11,200	
Robinson & Co.	*4,500	
Various	*307,000	*1,878,700
MARCH 9.—By the *Krakatau*=Batavia:		
G. Amsinck & Co.	*250,000	
General Rubber Co.	*250,000	
Manhattan Rubber Mfg. Co.	*33,500	
Alden's Successors, Limited	*27,000	
Various	*18,000	*578,500
MARCH 15.—By the *Tronto*=London:		
Meyer & Brown	*71,500	
Henderson & Korn	*22,500	
Johnstone, Whitworth & Co.	*360,000	
Rubber Trading Co.	*67,000	
Robert Badenhop	*60,000	
Ed. Maurer	*185,000	
W. H. Stiles	*56,000	
L. Littlejohn & Co.	*70,000	
General Rubber Co.	*480,000	
Aldens' Successors, Ltd.	*13,000	
Chas. T. Wilson Co., Inc.	*11,200	
The B. F. Goodrich Co.	*125,000	
Arnold & Zeiss	*125,000	
Rubber Trading Co.	*75,000	*1,721,200
MARCH 16.—By the *Orduna*=Liverpool:		
The B. F. Goodrich Co.	*10,000	
Henderson & Korn	*2,000	*12,000
MARCH 16.—By the *Philadelphia*=Liverpool:		
Rumsey & Greutert Co., Inc.		*2,000
MARCH 22.—By the *Tropea*=London:		
Meyer & Brown	*132,000	
Hadden & Co.	*65,000	
General Rubber Co.	*560,000	
Michelin Tire Co.	*60,000	
The B. F. Goodrich Co.	*560,000	
Johnstone, Whitworth & Co.	*370,000	
Arnold & Zeiss	*160,000	
Henderson & Korn	*195,000	
Goodyear Tire & Rubber Co.	*105,000	
L. Littlejohn & Co.	*78,000	
Rumsey & Greutert Co., Inc.	*22,500	
W. R. Grace & Co.	*33,500	
Chas. T. Wilson Co., Inc.	*120,000	
Robert Badenhop	*78,000	
W. H. Stiles	*30,000	
Ed Maurer	*112,000	
Robinson & Co.	*45,000	
Aldens' Successors, Ltd.	*33,500	
Rubber Trading Co.	*81,000	
Various	*1,500	*2,842,000
MARCH 23.—By the *Cheltonian*=London:		
The B. F. Goodrich Co.	*380,000	
Aldens' Successors, Ltd.	*270,000	
Rubber Trading Co.	*83,000	
Hood Rubber Co.	*80,000	
Chas. T. Wilson Co., Inc.	*170,000	
Robert Badenhop	*9,000	
Robinson & Co.	*20,000	
Rumsey & Greutert Co., Inc.	*33,500	
W. H. Stiles	*11,200	
Various	*67,000	*1,123,700
MARCH 23.—By the *Kansan*=London:		
Meyer & Brown	*76,000	
Henderson & Korn	*56,000	
Rubber Trading Co.	*67,200	*199,200
MARCH 24.—By the *Glenstrae*=London:		
Meyer & Brown	*200,000	
L. Littlejohn & Co.	*240,000	
Hadden & Co.	*13,500	
Chas. T. Wilson Co., Inc.	*85,000	
Hood Rubber Co.	*25,000	
Robert Badenhop	*225,000	
Aldens' Successors, Ltd.	*1,120,000	
Ed. Maurer	*135,000	
W. H. Stiles	*9,000	
Johnstone, Whitworth & Co.	*225,000	
Goodyear Tire & Rubber Co.	*225,000	
General Rubber Co.	*112,000	
Arnold & Zeiss	*115,000	
Henderson & Korn	*260,000	
Rubber Trading Co.	*25,000	*3,014,500

CUSTOM HOUSE STATISTICS.

PORT OF NEW YORK—JANUARY, 1915.

Imports:	Pounds.	Value.
India rubber	6,757,497	$3,063,434
Balata	265,566	103,236
Gutta percha	146,840	13,802
Gutta jelutong	925,762	50,674
Total	8,095,665	$3,231,146
Exports:		
India rubber	360,278	$237,183
Balata	177,836	71,803
Rubber scrap, imported	63,040	4,641
Rubber scrap, exported	31,968	4,684

PORT OF NEW YORK—FEBRUARY, 1915.

Imports:		
India rubber	14,543,805	$7,000,381
Balata	209,629	64,804
Guayule	.....	.....
Gutta percha	80,291	8,422
Gutta Jelutong (Pontianak)	1,623,464	75,906
Total	16,457,189	$7,149,513
Exports:		
India rubber	506,483	$211,734
Balata	111,580	33,676
Rubber scrap, exported	73,043	9,328

PORT OF BOSTON—FEBRUARY, 1915.

Imports:		
Gutta jelutong	304,800	$11,958
Gutta percha	45,060	5,161
Exports:		
Rubber scrap	1,524	426

PORT OF NIAGARA FALLS—FEBRUARY, 1915.

Imports:		
Rubber scrap	18,687	$1,047
Exports:		
India rubber	146,657	$75,616
Reclaimed rubber	188,598	24,998

PORT OF DETROIT—FEBRUARY, 1915.

Exports:		
Rubber reclaimed	44,182	$5,669

PORT OF PHILADELPHIA—FEBRUARY, 1915.

Exports:		
Rubber scrap	10,220	$1,040

PORT OF CLEVELAND—FEBRUARY, 1915.

Imports:		
Crude rubber	601,628	$22,218
Rubber scrap	201,628	22,218

PORT OF SAN FRANCISCO—FEBRUARY, 1915.

Imports:		
Crude rubber	6,644	$3,931

PORT OF NEW ORLEANS—FEBRUARY, 1915.

Imports:		
India rubber	30,601	$9,691

EXPORTS OF INDIA RUBBER FROM MANAOS DURING THE MONTH OF FEBRUARY, 1915.

EXPORTERS—	NEW YORK. Fine.	Medium.	Coarse.	Caucho.	Total.	EUROPE. Fine	Medium.	Coarse.	Caucho.	Total.	Grand Total.
Suter & Co.	130,540	13,429	50,599	12,280	206,848	105,777	7,360	6,169	29,754	149,060	355,908
General Rubber Co. of Brazil	143,251	30,620	73,398	58,092	305,361	155,766	32,987	2,817	16,044	207,614	512,975
Pralow & Co.	137,649	.....	73,914	18,043	229,606	107,664	24,406	28,906	60	161,036	390,642
G. Fradelizzi	53,062	5,600	35,822	18,676	113,160	176,960	45,222	16,770	9,815	248,767	361,927
Adelbert H. Alden, Ltd.	5,335	11,241	16,643	312	33,531	88,488	6,248	13,618	12,319	120,673	154,204
Taricredo, Porto & Co.	20,103	3,534	1,575	.....	25,012	39,190	9,383	20,712	2,604	71,889	96,901
J. G. Araujo	7,604	650	1,774	151	10,179	55,802	2,560	.....	.....	58,362	68,541
Pinho, Certo & Co.	14,200	2,753	1,717	2,770	21,440	14,560	1,120	320	.....	16,000	37,440
Semper & Co.	.....	.....	.....	.....	.....	20,063	2,157	3,817	320	26,357	26,357
G. Deffner & Co.	18,484	.....	.....	.....	18,484	.....	.....	.....	.....	.....	18,484
Motta & Co.	10,490	1,773	1,134	.....	13,397	.....	.....	.....	.....	.....	13,397
B. Levy & Co.	.....	.....	.....	.....	.....	10,000	.....	.....	2,384	12,384	12,384
De Sá & Co.	.....	.....	.....	.....	.....	1,420	363	2,224	420	4,427	4,427
Moraes, Carneiro & Co.	.....	.....	.....	.....	.....	1,708	.....	1,124	179	3,011	3,011
Serfaty & Bezerra	.....	.....	.....	.....	.....	1,760	.....	464	.....	2,224	2,224
Armazens Andresen	.....	.....	.....	.....	.....	87	1,217	271	.....	1,575	1,575
Mesquita & Co.	.....	.....	.....	.....	.....	290	.....	680	180	1,150	1,150
	540,718	69,600	256,376	110,324	977,018	779,535	133,023	97,892	74,079	1,084,529	2,061,547
In transit, Iquitos	120,376	15,268	70,489	326,570	532,703	183,682	10,700	43,408	63,708	301,498	834,201
Total	661,094	84,868	326,865	436,894	1,509,721	963,217	143,723	141,300	137,787	1,386,027	2,895,748

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TOTAL EXPORTS FROM MALAYA.

(From January to dates named. Reported by Barlow & Co., Singapore. These figures include the production of the Federated Malay States, but not of Ceylon.)

To—	Singapore. Feb. 6.	Malacca. Jan. 26.	Penang. Dec. 31.	Port Swettenham. Jan. 27.
Great Britain ..... *pounds*	5,403,977	537,281	19,513,200	3,021,258
Continent	638,896	.....	533,333	2,240
Japan	9,067	.....	.....	.....
Ceylon	23,600	.....	905,333	165,110
United States	413,592	.....	960,701	.....
Australia	28,080	.....	.....	.....
Total	6,517,212	537,281	21,912,567	3,188,608
	Feb. 11.		Dec. 31.	Feb. 1.
1914	3,456,957	.....	.....	2,594,807
1913	2,413,903	.....	16,042,267	3,141,647
1912	973,006	.....	9,684,831	1,811,248

Plantation Rubber from the Far East.

Exports of Ceylon Grown Rubber.

(From January 1 to February 8, 1914 and 1915. Compiled by the Ceylon Chamber of Commerce.)

To—	1914.	1915.
Great Britain ..... *pounds*	1,345,370	2,352,866
Belgium	532,862	.....
United States	379,243	.....
Germany	98,886	.....
Japan	56,914	21,656
Russia	42,317	74,043
Straits Settlements	35,815	.....
Australia	13,440	17,101
France	5,196	24,640
India	500	.....
Canada and Newfoundland	.....	122,290
Total	2,510,543	2,612,596

(Same period 1913, 1,527,896 pounds; same period 1912, 1,229,506.)

The export figures of rubber given in the above table for 1914 include the imports re-exported. [These amount to 35,911 pounds.] To arrive at the total quantity of Ceylon rubber exported for that period deduct these imports from the total exports. The figures for 1915 are for Ceylon rubber only.

Singapore.

Guthrie & Co., Ltd., report [February 9, 1915]:

The Rubber Association auction held today marked a fresh record as regards quantity catalogued, there being 160 tons on offer.

During the course of the forenoon bidding was fairly well maintained and for some parcels of scrap rubber there was spirited competition. In the afternoon demand appeared to fall away to some extent and the earlier values were not maintained.

Smoked sheet was sold at the same level as last week while pale crepe was $2 better at $117. Unsmoked sheet touched $107, an improvement of $1, while lower grade crepes fully maintained last week's prices. Scraps were wanted, particularly the untreated variety, and substantial advances were recorded.

Seventy tons were sold.

The following was the course of values:

	In Singapore, Picul.*	Sterling equivalent per pound in London.	Equivalent per pound in cents.
Sheet, fine smoked	$114@120	2/ 2 1/16@2/ 3 1/16	52.95@55.75
Sheet, fair to good	107@114	2/ 0 3/16@2/ 2 1/16	50.17@52.95
Sheet, unsmoked	100@107	1/11 1/16@2/ 0 3/16	47.13@50.17
Crepe, fine pale	114@117	2/ 2 1/16@2/ 2 3/16	52.95@54.47
Crepe, good, pale	108@112	2/ 1 @2/ 1 3/16	50.68@52.20
Crepe, fine brown	99@113	1/11 @2/ 2	46.62@52.70
Crepe, good brown	80@ 99	1/ 7 @1/11	38.51@46.62
Crepe, dark	72@ 95	1/ 5 3/16@1/10 1/16	35.22@45.10
Crepe, barky	60@ 91	1/ 2 1/16@1/ 9 3/16	30.15@43.33
Scrap, virgin	65@ 72	1/ 3 1/16@1/ 5 3/16	32.18@35.22
Scrap, untreated tree	54@ 72	1/ 1 1/16@1/ 5 3/16	27.37@35.22

*Picul = 133 1/3 pounds.
Quoted in S. S. dollars = 2/4 [56 cents].

RECEIVERSHIP FOR THE PORT OF PARA CO.

Frederick E. Eldridge, of New York, and Alexander MacKenzie, now in Rio de Janeiro, were appointed by the Federal Court, on March 25, receivers for the Port of Para Co., a Maine corporation doing business in Para. The company was incorporated in September, 1906, with a capital stock of $17,500,000. It secured concessions in Brazil under which it built and has since been managing a system of docks, warehouses and other improvements at Para. The company also owns all the stock of the Amazon River Steam Navigation Co., Limited, a British corporation operating boats on the Amazon River, and one-half of the stock of the Madeira Mamore Railway Co. The exact amount of the company's liabilities is not at present known. It attributes its financial difficulties to the paralyzing effect of the European war on Brazil business.